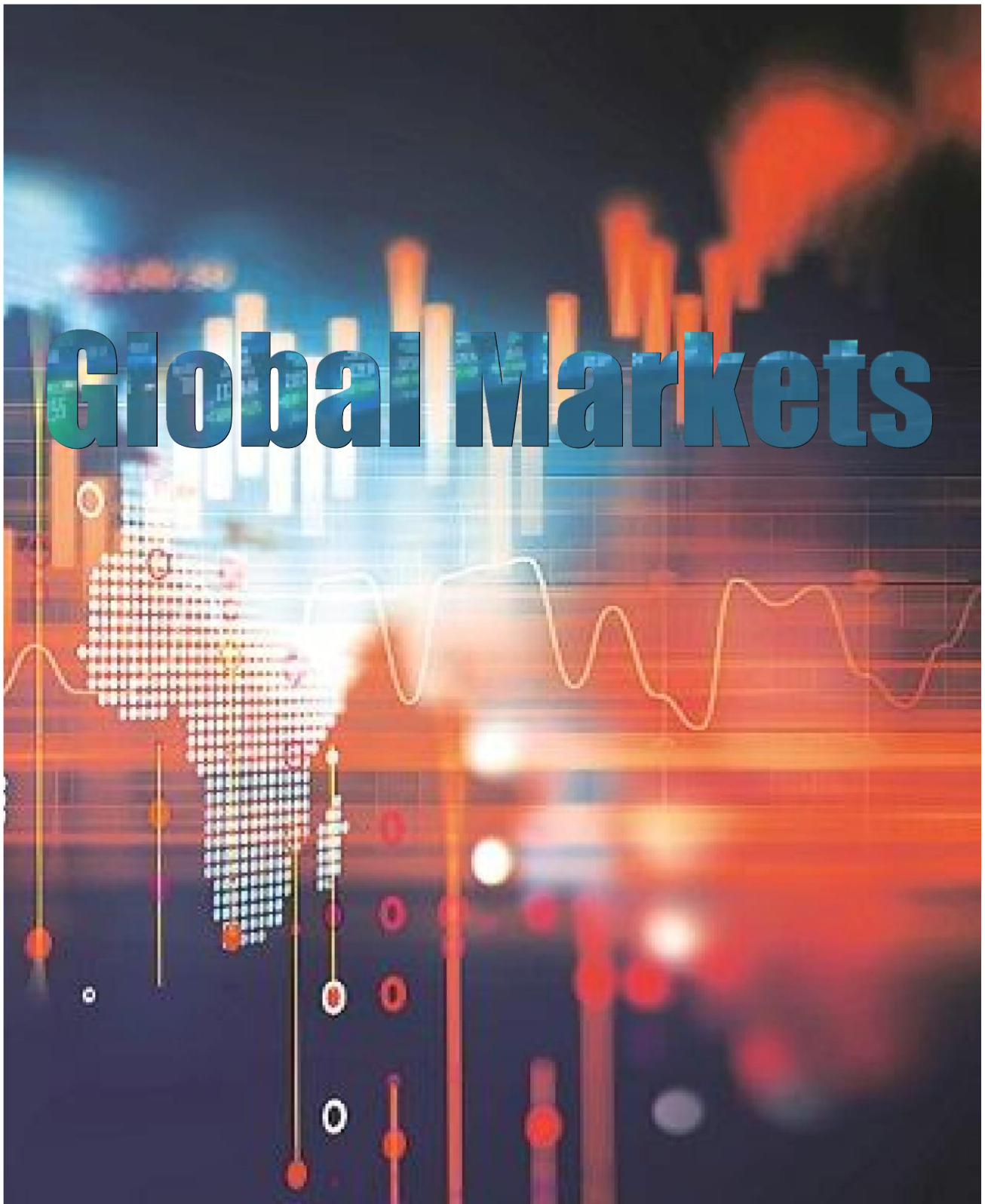




Reference Material



An illustration of Jonathan's Coffee House in London: where the modern concept of the Stock Exchange was developed over time. The first one is, of course, the London Stock Exchange.

The Origin of Markets

A group of adventurous traders in the city of London decided to set forth in a ship for the far-off land known as India. It was then a land of milk and honey and Indians are all too familiar from schoolbooks of this glorious past of which no trace of evidence remains. Exotic silks, spices, gems and treasure troves were all too alluring.

Cardamom, cinnamon, cloves, tea and pepper were luxury goods when first discovered. At first, the price per unit was worth a prince's ransom. Later the sheer volume of trade made the business hugely profitable. Kingdoms and Empires came to be built on these products. A fascinating account of the evolution of world trade is to be found in the book titled "How Trade Shaped the World" by William Bernstein.

With such dreams in their sights, this group of traders needed to fund their adventure. You need to buy a ship, hire men, carry cash (in gold), run the risk of perils of the sea, pirates and acts of god to go all the way to India, come back running those same risks. If you did this successfully, the rewards were awesome!

But where to get the money? That too, for such a risky venture? The adventurers (we can imagine) sat at the local coffee shop talking about such grandiose plans. One of the friends around the table told them of a rich man he knew who might be interested in this proposition.

So off they went to see the rich man. They told him of the great opportunity and how any one investing in this venture (adventure) would reap huge rewards. The rich man heard them out and asked how he would benefit from the venture.

"Well, sir, when we get back, we will report to you on how much profits we made. Since you fund the venture you own a large part of it.

We own the other part of it for actually travelling and doing all the hard work!". And the rich man said: "Sounds good. How do I know you will stick to this promise?"

"Well, sir, we have a common friend here who will vouch for the fact that we will not sail away with your money. As for the promise, we will write it on a parchment that you own this enterprise to extent of the money you give us."

The rich man wanted to know when he would get his original amount back. The traders told him that all he would get was profits from the venture. His original money got him ownership of the enterprise itself. The friend interjected. He told his rich friend, "Look, if the venture does well there will be others who will be interested in buying-in into buy into this enterprise. You can always sell that certificate of ownership which we give you to

the buying person in exchange for money. In fact, we expect our venture to do so well that you can sell the certificate for more than what you paid!”

“All of this sounds perfect,” said the rich man. “In fact, too good to be true! When I, the richest man in London find it so difficult to buy into this, how can I be certain of finding someone else to buy from me?”

To this the friend said, “Sir. If there is no one else willing to buy, I will buy from you. You can always find me at Jonathan’s Coffee House on Exchange Alley.” And the friend added that if no one else were willing to sell on a given day then he would sell.

And thus, was sown, from private funding the seeds of the enterprise that eventually became the Crown in the Jewel of the British Empire. Of course, the story narrated above is not to be found in any history book and liberally fictionalized; but it is not far from how things started out. Let us see where each part of the story fits what we know of capital markets today.

The money required for the venture is of course the term we previously defined as capital.

The adventurers are promoters. The entity of which they promised ownership is now known as the ‘company’.

The friend who took them to see the ‘rich man’ is the investment banker.

Promising to buy and sell when no one else would was a much-needed way of instilling confidence in the new proposition of tradable ownership of an enterprise. This is the origin of the term market making. The market maker is often the original friend who brought the deal to the investor: after all, if the person who brought the deal is himself not willing to back the deal, then who will?

We, thus, quite often find the term market maker used interchangeably with investment banker; Or in the same breath; Or in the same context. This evolutionary context also helps us understand why some brokers/intermediaries/investment bankers also buy and sell for their own account (using their own money) and do not just execute client orders with client money.

The paper on which the traders wrote out the promise of ownership is the share certificate. It is now referred as equity, common stock or simply shares. While each of these terms has a history to them, in the modern context they are interchangeable terms, and all mean the same thing: they represent ownership of an enterprise.

In the modern world the investor, the rich man, need not be all that rich. It just takes a small amount to be the owner of one of several shares in a company. It is quite hard to visualise that the stock *Paternoster Square, where LSE is now located.*



market, which today is electronic, and a high-speed operation has its origins in a shaky, none-too-certain fashion.

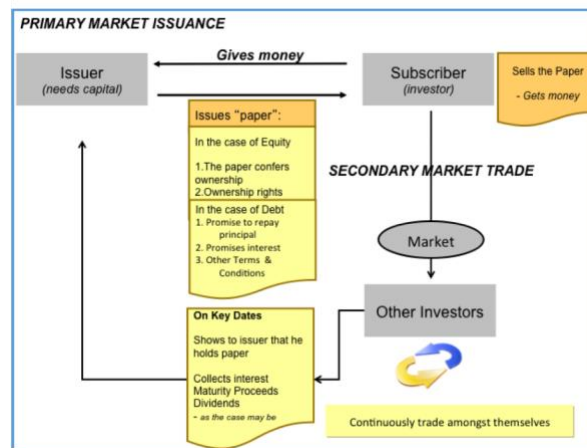
That leads us to examine what the Capital Market is!

The Capital Market

As the term suggests this is the market for Capital.

Capital – in the context - refers to long-term money which is available for deploying into a project or enterprise. The project is expected to turn profitable and generate enough cash to justify the project. But this is going to take a long period: at a minimum three years. By not specifying how long that period can be one conveys the idea that long term funding can be ‘permanent’ in nature. If a person funds a venture for such a long period of time that it borders on the permanent, he is in essence the owner of the enterprise.

Primary Markets are the markets of first issuance. Secondary Markets are the markets for trading that provide liquidity to investors. The accompanying chart below neatly captures the entire flow of the markets:



Global Markets / Investment Banking

Investment Banking is a Capital Market activity. It has nothing to do with Commercial Banking by nature. At the commercial bank, depositors seek low risk and hold the bank answerable for their moneys; an Investment Bank plays an intermediary role; and both sides to the deal or transaction must assess the risks for themselves.

The intermediary role of an Investment Bank arises from the need of businesses for long term capital as seen in the preceding short narrative. While Commercial Banks provide businesses with certain forms of longer-term capital such as term loans, the really long-term needs cannot be met by banks. Nor can Commercial Banks provide 'risk capital'.

The ultimate need for long-term capital is the need for equity, where the current owner of a business seeks other, newer owners (investors) to join in investing capital in the business. These newer owners might be private groups (individuals or institutional) or members of society at large. If the investment is sought privately it is called a 'private placement'. If the investment is sought from the public at large it is called a public issue or public offering.

Another form of long-term capital is debt or loans. The borrowing organization issues paper containing promises to pay interest and repay the loan amount and. These basic promises together with other terms and conditions constitute the paper known as 'bonds' or 'fixed income securities'.

Investment Banks provide the service of helping entities raise equity and debt. In doing so, the Investment Bank assesses the business proposition being made by the entity raising capital (the Issuer). Ideally, the Investment Bank must take on such assignments only if the business proposition is worthy.

The investing public is supposed to judge an Investment Bank by the quality of the deals it brings to the market and this reputation is precious to the Investment Bank.

Investment Banks earn a fee from the capital raiser for this work which can range from to 4% to 6% of the amount raised. Certain deals which are high profile and trophies are competed for by multiple Investment Banks; on such deals the fees tend to be lower as an outcome of price competition.

Sometimes, when an issue of shares or bonds is available at a very attractive price compared to the future prospects for that company, the Investment Bank might invest its own capital in the deal. In such cases, if the future price turns out as anticipated, the Investment Bank makes additional investment profits on the deal, beyond the percentage fee it charged for raising money.

Investment Banks also engage in Underwriting public issues. Underwriting is a commitment if the investing public does not pick up enough of the Issue, the Underwriter will pick up some or all of



A representative list of some of the top Investment Banks of the world. These are in the 'bulge bracket': large ones.

the shortfall. The Investment Bank/Underwriter earns an underwriting fee for such commitments.

Merchant Banking, strictly speaking is not a separate activity. When the Investment Banker does not invest its own capital in a deal, and merely takes it to the market on behalf of the capital raiser (Issuer) that can be termed as Merchant Banking activity. In some countries the term Merchant Banking and Investment Banking are used interchangeably.



Internationally, an Investment Bank takes deals to markets; in some deals it puts its own capital and in others it does not.

Investment Banks also have brokerage desks. These brokerage desks help customers complete transactions of customers in the markets. Brokerage earns the Investment Bank commissions.

Investment Bank sometimes trade on their own account as well. In some economies (like India) every trade must be routed by a broker to a stock exchange at which it is a member. However, there is no corresponding restriction in major markets like US, UK and the European Union (which is a grouping of 27 countries).

In such situations, the Investment Bank might buy what a customer wants to sell at a given price, if it thinks the customer is seeking a price on which it can make a profit. The same is true of the situations in which the customer is buying; if the price is

This merger was large as well as successful. It was advised by UBS, Goldman Sachs and Davis Polk & Wardwell, the last being a specialist, boutique Investment Bank.

such that the Investment Bank anticipates extra profit, it may sell the security from its own holdings to that customer.

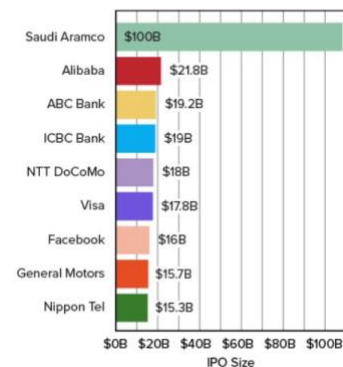
For Investment Banks, one of the large groups of potential clients are the insurance companies, pension funds, mutual funds and other fund managers. These entities are provided investment research and advice by Investment Banks. These entities are the source of a large proportion of the buy and sell orders that they get at the brokerage desk.

From this perspective an Investment Bank is a “Sell-side” firm; their customers, the insurance, pension and mutual fund companies etc., are the “Buy-side” firms.

So, the Investment Bank earns commissions as well as makes extra trading profits from dealing for itself, at the brokerage desk. Dealing for itself, with its own money and securities is known as Proprietary Trading. Trades carried out for customers are, on the other hand, referred to as Agency Trades.

The 10 Biggest IPOs in History vs. the Saudi Aramco IPO

Even if it were to sell just 5% of its \$2 trillion valuation, the Saudi Aramco IPO would blow current record holder Alibaba out of the water for biggest IPO ever...



Sources: Investopedia and CNN Money

Investment Banks also advise on Mergers and Acquisitions and charge a fee for such expertise, helping clients buy other companies. If the seller is not interested then it is even more interesting and profitable for the Investment Bank involved; it gets involved in making the business case and persuading the target to agree to be acquired.



These are some of boutique, specialist Investment Banks. Boutiques are more focused on M&A and other specialist activities; oftentimes with industry specialisation such as aviation, energy, pharma, e-commerce and so on.

Investment Banking is a glamorous business. Those who work in Investment Banking make significant money for their firms and for themselves, whether from M&A or from trading.

Investment Banking (IB) as an activity can be pursued in a separate company; It can also be pursued as a division of a larger bank as the Investment Banking division.

Today, large banks are present in both Commercial Banking as well as Investment Banking and are often called Universal Banks. In such banks, Investment Banking operates as a division. The principal sources of income in the Investment Banking division of such banks are:



1. Fee from issuance of equity and debt
2. Sale of products to customers of Global Markets and other divisions of the bank
3. Trading profits from buying low and selling high (to meet customer needs)

Customers of the Investment Bank

There are a wide range of entities in the "Buy-side": mutual funds, hedge funds, insurance companies, pension funds, sovereign wealth funds etc.

The "sell-side" usually maintains an aggressive sales force to build these relationships.

The usage of trading desks by other clients of a Universal Bank from Business Banking, Wealth Management and Consumer Banking already provides a good base to work with. Encouraging usage with good advice and creating confidence for line managers in other Lines of Business at a Global Bank helps increase volumes. This is true of the 'Universal Bank' that have multiple lines; not those which are just specialist investment banks.

Across the board, there is a need to maintain a robust and accessible advisory desk. Customers place orders based on the market outlook which they receive and the confidence which the desk creates on trading a position. The quality of advisory services is an important factor in bringing customers to the desk.

Specialist trading is a relatively new driver of growth. Investment Banks provide "Buy-side" firms access to a wider range of markets. Direct Market Access which allows the Buy-side dealers to operate trading terminals are a n attractive



Sample names from the Buy-Side

proposition. Other specialist trading platforms enable access to a range of markets: across products and anywhere in the world. Algorithmic trading, programmed trading, high-frequency trading are other developments driven by the blend of technology and markets.

What is Equity

When investors invest in the Equity or shares of a business; or company; they become owners of the business. If the company is divided into one hundred parts and each investor owns ONE part, then each investor owns 1% of the company.

Each part of the company is called a "Share". The share is in that sense, the smallest, indivisible part of a company's ownership. It is like an atom.

Each owner of a part of the company is called a "Shareholder". A shareholder may own many parts: if she owns 6 parts, for e.g., she owns 6% of the company. Find out how many shares (parts) a company has; find out how many shares a person owns and you can tell what is the percentage ownership of that person. *'Shares', 'stocks' and 'equity': are all terms that are used interchangeably in normal conversation.*

The Idea of a Business

The Story of Financial Instruments is rooted in the challenges of starting a business. A Business person has a great business idea - But not enough money to pursue the idea.

An investor Is looking for opportunities to invest. The business person explains the idea to the investor. The investor likes the idea: agrees to invest.

Operationally, here is how that Investment process works:

- ☑ The investor gives Money which is called Investing.
- ☑ The business hands over a "Paper" which is evidence of the investment; also known as *Issuance*.
- ☑ The "Paper" contains various promises made by the business person to the investor.

In offering shares to investors, the company does the following:

1. All explanations of the idea are written down
2. All the possible benefits of the investment idea are mentioned
3. All the risks are mentioned
4. AND most important, depending on the kind of investment made, there are promises to either:
 - a. Share profits of the business
5. The Rights of the Investor are clearly mentioned.

The business person is the issuer and the investor is the subscriber.

The Benefits of Shareholding

The core promise involved in Equity is that:

1. The owner of the paper becomes an owner of the business.
2. All benefits of ownership flow to the holder of the paper.
3. However, equity limits the problem associated with the failure of a business.

The business owner owns a cow. The cow is the business. He also owns the milk the cow gives.

The milk produced by the cow is the profit of the business. If a cow is owned by a group of people collectively, the produce of the cow is the only way to share ownership, without disposing of, or destroying the business, that is the cow.

Benefits of Ownership

A business makes a profit. Shareholders take some part of the profit as dividend. Shareholders in the company and through the company agree to reinvest the balance of profits in the growth plans of the business.

The profit of future years will increase as a result. The rewards of investing in the future, lie in the future. Dividends are usually declared annually. Dividends represent the regular rewards of investment.



Businesses can make losses, too.

Shareholders have no obligation beyond the initial capital they invested in the Primary Market. This encourages risk taking as it insulates the owners from business failures and any resultant threat of insolvency.

An investor may have lost the initial amount per share which was invested in the company. But there might be many more people who have to be paid. And our company has no further cash! The shareholders will then say, "Sorry! The loss is limited to the money we originally put in to starting the company."

This concept of limited loss encourages investors to back enterprise without fear of unlimited loss of personal wealth.

Earnings Per Share

A business is divided into a number of parts each called a share. A business makes a profit. The profit made per share is called: Earnings per Share.

To arrive at this number, take the Profit in a Year divided by Shares in the company.

To take an example:

- ☑ Apple's Earnings Per Share is approx. \$ 9.60 per share in 2017.
- ☑ Apple made \$ 48 billion in profits in 2017.
- ☑ Apple has 500 billion shares in 2017.
- ☑ Dividing those two numbers we get an EPS \$ 9.60.



Dividends

Dividends are determined by a company loosely on the following basis:

- ☑ Take this year's profit (Earnings Per Share)
 - ☑ Give some to shareholders in cash
 - ☑ Reinvest some in your future
 - ☑ Future Earnings Per Share (next year's profit) will grow as a result
 - ☑ Dividend is the distribution of (a part or all) profits in cash. ☑
- This is the reward for participating in the risks.

Dividend Policy is about deciding how much to distribute; and how much to reinvest.

Growing / Growth companies give just enough to keep shareholders happy. The rest of the profits are reinvested.

If there are no opportunities to grow, the company will distribute all or most of the profits as dividend.

All investors in a company like for it to have good, strong or high "Earnings Per Share". Some investors prefer high dividend companies: those that payout most of the earnings. Some investors prefer companies with a **growing** Earnings Per Share. This implies high reinvestment of profits; or a very high growth trajectory as seen by the likes of Google or Apple Inc.

If you go to www.ISINCODES.com all ISINs can be searched.

The example of Facebook's ISIN is given here.

ISSUER NAME	ISIN	CUSIP	SECURITY TYPE	ISSUE DATE	COUNTRY
FACEBOOK, INC.	US30303M1027	30303M102	COMMOM STOCK	MAY 18, 2012	US

In this, the 'old' CUSIP number is seen to be subsumed in ISIN. (An explanation of CUSIP as an identifier is follows)

CUSIP in USA

CUSIP stands for Committee on Uniform Securities Identification Procedures. Formed in 1962, this committee developed a system (implemented in 1967) that identifies securities, specifically U.S. and Canadian registered stocks, and U.S. government and municipal bonds.

The CUSIP number consists of a combination of nine characters, both letters and numbers, which act as a sort of DNA for the security - uniquely identifying the company or issuer and the type of security.

The first six characters identify the issuer and are assigned in an alphabetical fashion; the seventh and eighth characters (which can be alphabetical or numerical) identify the type of issue; and the last digit is used as a check digit.

The CUSIP Service Bureau is operated by Standard & Poor's on behalf of the American Bankers Association (ABA).

SEDOL in UK

An identification code, consisting of seven alphanumeric characters, that is assigned to all securities trading on the London Stock Exchange and on other smaller exchanges in the U.K.

Risks in Equity

From a risk analysis perspective there are two broad benefits to be had from owning equity

- ☑ Distribution of Profits: equity has an uncertainty related with this cash flow benefit
- ☑ Gains in the price of the security: this is market driven and there is uncertainty related with movements in price

Risks of Owning a Business

1. The Risk that the business does not do well – and makes losses
2. The Risk that the business makes profits; but this is lower than that available from fixed income: so that the risk-reward ratio is breached and no additional benefit is had from holding equity
3. The risk that the company is liquidated
4. The risk that on liquidation the assets prove inadequate to repay the investors their original investment amount

Market Risk

This is the Risk of loss (in trading/ investment book) arising from exposure to equities. A stock is bought at a particular price. The market price goes down. The risk of making such a loss is market risk.

Unless the investor runs Market Risk – the investor cannot run the possibility of making a gain.

It is this act of BUYING that causes exposure: resulting in Market Risk. Bought or Sold *anything*: Equities, Forex, Interest Rate Products, Commodities: the dynamics are the same. And the definition and impact of market risk is the same .

Liquidity Risk

This is the risk that there are no buyers or sellers in a stock on a given day; so that, even though the stock has value, it is theoretical because it becomes impossible to sell!

Attitude To Risk Of Different Market Participants

All investors who wish to own a company over a longer period of time end up buying equities. Long term investors closely watch the fundamental performance of the company.

They see value in the cash flow stream that a company generates and the resultant dividend to them.

They also know that over a period of time others too will appreciate the performance of this company: the resultant increase in market prices of the share is to their advantage. The price line shows increase in value over time. This line has to be driven by a consistent/ growing Earnings Per Share in the eyes of the Long Term Investor.

However, long term investors are not one single lump of undistinguishable participants; there are a number of different categories within this group.

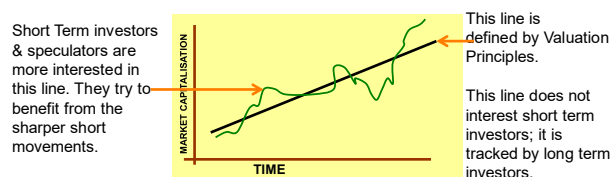
Speculators and Traders

Shorter term investors and speculators also buy and sell shares. While their investment horizon or perspective is fundamentally different from that of the long term investor, these participants are essential to the day-to-day liquidity in the market.

Short term Investors trade in and out to benefit from short term movements in prices.

The price of an equity share is defined by Valuation Principles.

The line representing long term value does not interest short term investors; it is tracked by long term investors.

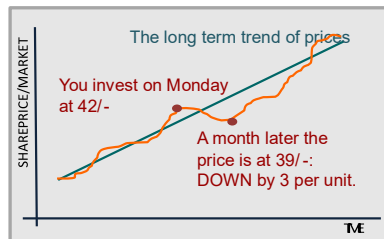


Short Term investors & speculators are more interested in the volatility in the short term. They try to benefit from the sharper short movements.

Short term investors tend to cause price volatility which sometimes bothers the Long Term Investor and are said to hinder capital attraction.

Equity investments are risky. Companies / businesses may turn out to be different than how they look. They may fail. Even where the company is a great one and the long term outlook of the market is positive, the short term movements can be extremely disturbing.

In the chart shown below, the green line reflects the long term trend of prices



Let us assume that this is sure to happen for the sake of this discussion (even though there are never any guarantees in markets)

The squiggly orange line is how markets / share prices ACTUALLY move. Sometimes up and at other times down.

You invest on Monday at 42/-

A month later the price is at 39/-: DOWN by 3 per unit.

How do you feel when this happens?

Some investors cannot ignore such downward movements. They panic. Equity investment is not for such investors – even if the money is investible for the longer term. Equity investing requires the ability to stay focused on the long term prospects: not the short term volatility.

Exchange Risk – As A Component Of Price Risk

If an investor holds equity in a market which is in a different currency zone then in addition to conventional price risk the investment carries the risk of exchange rate risk.

If the currency of the invested country depreciates then the value of the investment depreciates too!

Case of Exchange Risk

A US based investor invests \$ 1,000 in India.

The \$/INR is at 45: so INR 45,000 gets invested. 1,000 shares of X & Co are bought @ 45/-.

In the first part of the calculation the Share price might go to Rs. 60/- and the investor sells getting Rs. 60,000. The return is 33%!

In the second part the investor seeks to take back dollars from the Indian market. The \$/INR rate is @ 68: Rs. 60,000 is converted and the US investor gets back \$882/-.

This is less than the original amount invested even though the stock did very well. This is the impact of exchange rate movements.

Primary and Secondary Markets:

Financial instruments are issued in a market: the market for money – financial markets. This market in which the paper is first issued, when it is created by the issuer, is referred to as the Primary Market. The paper issued is also referred to as, “Security.” It may also be referred to as a “financial instrument.”

‘Paper’ = ‘Security’ = ‘Financial instrument.’

All are used synonymously, though there are different types of paper in financial markets.

The advantage of issuing paper to the investor is that it allows the investor to sell the investment and raise cash, if needed.

The investor sells the paper on the market, and realizes cash. This market, in which a paper that was previously issued can be sold and cash realized, is called the Secondary Market. This ability to encash the investment when needed is an attraction to the investor.

Secondary Market Trades

What happens in secondary trades?

As the shares are traded in the secondary market, it is the owners that keep changing. The change in ownership has nothing to do with the company except that it maintains records of who the new buyer is. Money changes hands between the buyer, or the new owner, and the seller, or the old owner. Which, too, has nothing to do with the company.

So what purpose does the trading of shares serve for the company?

1. Investors know that if a share is traded, they can get their money back through the secondary market whenever they want. This promise of liquidity encourages them to invest.
2. The management of the company gets a signal on how its performance is perceived by the market through share price movements.
3. When the company wishes to raise capital the traded price gives an indication of the price at which it may be able to issue fresh shares.

Introduction to Fixed Income

When we look at a business's need for capital, it can be categorised into:

- Long term and Short term

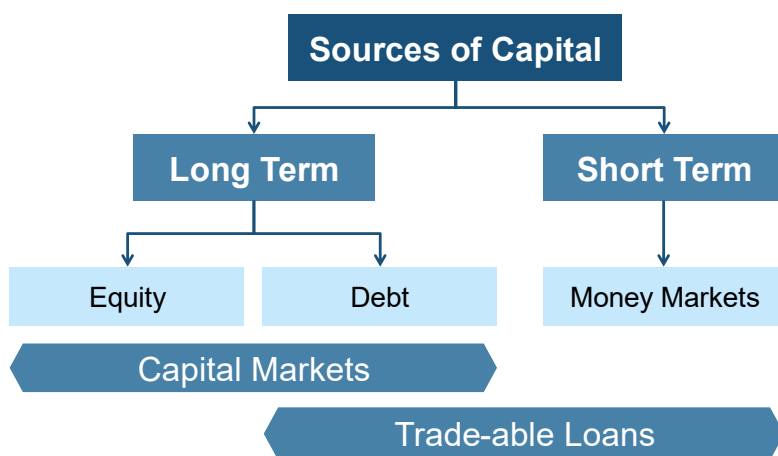
Within long term capital sources there are two different types of capital:

- Equity and Debt

Equity shares the ownership of the business with the investor.

Debt is synonymous with lending: it is repayable and involves interest, too. They need to be repaid and interest is chargeable on the loan as with any loan.

Debt is available both for the short- and the long-term. The market for shorter term loans is the Money Market. Equity is not available as a short term source.



This chart captures the essence of the Capital & Financial Markets.

What are the promises that the Issuer of Debt makes to the Subscriber?

The core promise involved in DEBT is that:

- The owner of the paper will receive repayment of the amount loaned
- Interest will be paid on the loan as per agreed rates and frequency
- The issuer will not do anything that adversely impacts the interests of the lender.

Debt Instruments Are Traded, Too!

The Issuer sells the paper in the Primary Market, and gets the cash needed for the project. Other investors trade in the market as a continuous process.

On the Record Date, the holder of the paper gets:

- Interest, if it is due
- Loan repayment, if due

The Classification of the Fixed Income Universe

A more accurate description of the universe we are trying to classify would be 'The Trade-able Loan' universe. Let's focus on getting it right for now; the semantics are less important if you really know what you are looking at.

The universe of debt/loan instruments is best understood by classifying it. There are two broad ways to classify the various instruments:

- By maturity
- By 'Issuer'

By Maturity

The life of the instrument is variously termed as: *period, maturity, tenor* – all mean the same.

If the **tenor** is short term, the timeline is less than a year; and the categorization of the debt instrument is as **"Money Market Instruments"** (such as; T-Bills, Certificates of Deposit, Commercial Paper).

If the tenor is medium term, the timeline is 1 to 10 years; and the categorization of the debt instrument is as **"Fixed Income Securities"** ; such as (T-note, Corporate Notes).

If the tenor is long term, the timeline is more than 10 years – typically, up to 30 years and the debt instrument is categorized as a **"Bond"**; such as (T-Bonds; Corporate Bonds)

By Issuer

Classifying the debt universe differently: The instruments can also be classified by who the ISSUER is; i.e. who took the loan. The borrower [Issuer] could be:

- Corporate
 - Government or
 - Others.
- Issuer x**

Maturity

Combining 'Categorization by Borrower' with Categorization by Tenor' we get the following table:

		Who took the loan		
		Corporate	Government	Others
Tenor of Loan	Short Term	Commercial Paper	T-bills	Certificates of Deposit (Issuer: bank)
	Medium Term	Fixed Income Securities	T-Notes	-
	Long Term	Bonds	T-Bonds	Munis etc. (municipalities: USA)

In Conversation

In conversation, when the term 'bond' is used it includes both medium and long term instruments. But it never includes short term instruments which are strictly referred to as 'money market instruments' only.

All government paper (loan instruments) are referred to variously as 'Treasuries', 'Gilts' or 'Government Securities' (G-Secs).

Trading Bonds

In the market place bonds are quoted as follows: the buyer is at 99.10 and the seller is at 99.20. These rates represent percentage of the face value of the bond.

If it is a bond of Face Value \$ 1,000
The buy quote is 99.1% of 1000
I.e. Interested in buying at 991

If it is a bond of Face Value \$ 1,000
The sell quote is 99.2% of 1000
I.e. Interested in selling at 992

If the Face Value is \$ 1m?
Buyer @ \$ 991,000 Seller
@ \$ 992,000

The difference between the Buy and the Sell price is the spread, as it is in all markets!

This price does not include any of the interest aspect of a bond as we shall see. This price is called the 'Clean Price'. We say: "Bonds are traded at the clean price."

Interest (coupons) in bonds

Bonds, as we know, pay interest (coupon) periodically. There are a number of interest payment dates in the life of a bond. Let us take two dates and discuss how far apart they can be.

In corporate issues, interest payment is typically once in 6 months (this is by convention; but it could be quarterly, too. Conventions can be broken.). In Munis interest is paid once in 6 months. Government securities – most governments of the world - pay interest: once in 6 months.

Eurobonds denominated in US dollars pay interest annually, i.e. once in a year.

Swiss and Swedish government bonds pay interest once a year.

It is a matter of convention and practice and those who work in this area either know it from practice; it is also available easily on a Bloomberg or Reuters terminal.

Interest accrual

Time is like a meter, running all the time: the bond earns interest as time ticks, whether payable or not. But what is earned by way of interest is payable only on the contracted 'Payment Date'. To reiterate the point, it is earned continuously.

Assume: interest is earned at \$ 1 per day; in 181 days \$181 would accrue which will be paid out on the payment date. Then, here is how that would look:

- ☑ On Day One, one dollar is earned.
- ☑ On Day Two another dollar is earned and the total interest due, or accrued is two dollars
- ☑ On the third day another dollar is earned and the total accrued interest is 3 dollars
- ☑ And so on till the day number 181 when the total interest earned, day by day is 181 dollars.

Then comes the next interest payment date and the total accrued interest is paid in cash to the bondholder.

The meter of accrued interest is now reset to zero and from the next day the accrual starts again at one dollar a day.

Accrual and the Traded Bond

When an investor sells a bond it holds, the date could be any date on the calendar: particularly, between any two interest payment dates. Let us mark that as the trade date.

Interest accrued between these two dates belongs to the seller who was the owner of the bond till this day. But the entire interest actually goes to the holder on 'Payment Date # 2', i.e. to the buyer of the bond. So, to remedy the situation, it is agreed in bond markets that the buyer will hand over this accrued amount to the seller along with the purchase price at the time of the purchase. This determines how much is to be paid on the 'Settlement Date'.

The 'Clean Price' plus the 'Interest Accrued' is called the 'Dirty Price'. So, we say: "Bonds are settled at the Dirty Price."

Combining an expression we saw earlier it can be said that, "Bonds are traded at their Clean Price and settled at their Dirty Price."

Here are the steps between trading and settlement:

- ☑ Determine the purchase price is also known as clean price
- ☑ Determine the last and the next interest payment date
- ☑ Determine the Accrued Interest on the Settlement Date To
- ☑ the Clean price add accrued interest to get Dirty price
- ☑ When the bond is traded, clean price is agreed.
- ☑ When the bond trade is paid for (when the trade is settled) the Dirty Price is paid

A Few Points on Clean & Dirty Prices

At any point in time, whether traded or not, the market value of a bond is its dirty price.

Here are the steps involved:

- ☑ Find the last quoted price.
- ☑ Work out the accrued interest on the date of valuation. Add the two
- ☑ That is the fair value of the bond, the cash value it will realise if it is sold immediately.



The market value of a bond is relevant for other transactions, especially where it is used as an asset to be placed as collateral as is the case with a repurchase transaction (repo).

All these are market conventions which need not be explicitly communicated. If due to a lack of understanding on the part of any one counter-party a dispute arises, it will be settled in favour of the party who followed the market convention.

Risks in Fixed Income

Coupon is earned as promised by the issuer. The uncertainty related with this cash flow/ benefit is about the performance about the business and therefore the issuers ability to pay.

If market rates rise higher than coupon; it results in the negative effects of interest rate risk: and the bond holder is at a disadvantage.

There is a possibility of gains in the price of the security. This is market driven and happens if the bond pays higher coupon than range to which the market has moved. Conversely, losses can happen if the bond pays lower coupon than where the market is at.

The bond contains a promise to repay principal. If the borrower (issuer) defaults. There could be a loss of principal. This is credit risk.

Credit risk can also result in gains and losses. This happens if the bond is graded up or down from a previously held rating, which is an increased or decreased perception of credit risk of the issue.

So let us look at all that in a structured fashion.

Interest rate risk

The risk of interest rates changing from what is contracted to a disadvantage.

Reinvestment Risk

The risk to an investor that when the time comes to reinvest, the rates or earning are not as attractive.

Call Risk

The risk that the issuer will call back the bond because its interest rate is high; to the detriment of the holder.

Refunding Risk

The risk to an issuer that when the time comes to take a new loan in the place of the old, the rates are not as attractive; it becomes costlier.

Credit Risk

The risk to an investor that the issuer fails to meet obligations to pay interest, repay principal on time.

Liquidity Risk

The risk from locking up money from long; and for the holder to not be able to get liquidity by trading the bond.

Exchange Risk

It applies if issuer and holders are operating in different currencies. The risk that a change in rates affects the costs / returns adversely.

Money Market Instruments

		Who took the loan		
		Corporate	Government	Others
Tenor of Loan	Short Term	Commercial Paper	T-bills	Certificates of Deposit <i>(Issuer: bank)</i>
	Medium Term	Fixed Income Securities	T-Notes	-
	Long Term	Bonds	T-Bonds	Munis etc. <i>(municipalities: USA)</i>

Money market securities are securities with maturities of up to twelve months, so they are short-term debt obligations. Money market debt is an important segment of the global financial markets, and facilitates the smooth running of the banking industry as well as providing working capital for industrial and commercial corporate institutions. The market allows issuers, who are financial organizations as well as corporates, to raise funds for short-term periods at relatively low interest rates. These issuers include sovereign governments, who issue Treasury bills, corporates issuing commercial paper and banks issuing bills and certificates of deposit. At the same time, investors are attracted to the market because the instruments are highly liquid and carry relatively low credit risk. Investors in the money market include banks, local authorities, corporations, money market investment funds and individuals; however, the money market essentially is a wholesale market and the denominations of individual instruments are relatively large.

Although the money market is traditionally defined as the market for instruments maturing in one year or less, frequently the money market desks of banks trade instruments with maturities of up to two years, both cash and off balance-sheet. In addition to the cash instruments that go to make up the market, the money markets also consist of a wide range of over-the counter off-balance sheet derivative instruments. These instruments are used mainly to establish future borrowing and lending rates, and to hedge or change existing interest rate exposure. This activity is carried out by banks, central banks and corporates. The main derivatives are short-term interest rate futures, forward rate agreements, and short-dated interest rate swaps.

The cash instruments traded in the money market include the following:

- A. Treasury Bill (T-Bill): T-bills are non-interest bearing, direct obligations of the United States government. They have an initial maturity of one year or less and are regularly sold at auction (in competitive and non-competitive bidding) by the Federal government. They are sold at discount from their maturity (par, face) value, which ranges from \$10,000 to \$1 million. The investor's entire return comes in the form of the appreciation in price that occurs as the bill approaches maturity.
- B. Negotiable Bank CDs: Negotiable certificates of deposit are money market instruments sold by banks, typically in maturities less than six months. They are issued in denominations ranging from \$100,000 to \$10 million. The standard round-lot trading unit among dealers is \$1 million. These negotiable instruments are traded in the secondary market and are a major tool used by large banks to manage their liquidity.

- C. **Commercial Paper (CP):** Commercial paper is unsecured, short-term, discount securities issued by financial organizations (about 75 percent) and corporations with high credit ratings. CP is a cheap alternative to borrowing from banks or other lending institutions. CP is generally sold in denominations of \$100,000 or more and maturities are limited to 270 days or less, allowing corporations to avoid the registration requirements in the Securities Act of 1933. Typical maturities are around 30 days. Commercial paper can be sold directly to investors or to commercial paper dealers.
- D. **Eurodollar CDs:** Eurodollar CDs are certificates of deposit issued by banks outside the U.S. and denominated in U.S. dollars. (Technically, any certificate of deposit that is denominated in a currency outside the bank of origin can be called a Eurodollar Cd. However, the great majority are in U.S. dollars). They are short-term CDs (less than 12 months maturity) and typically yield a higher interest rate than the domestic CDs of U.S. banks.
- E. **Repurchase Agreements:** “Repos” are transactions in which one party sells securities to another party (usually at a discount from the fair market value) and agrees to buy the securities back at a later date. Repos may be overnight or on a term basis, ranging from a few days to over 30 days, but most are for a term not exceeding two weeks. The securities used in repos are known as “collaterals” and may be Treasury securities, other money market instruments, federal agency securities, or mortgage-backed securities. Repo rates may be lower than the Federal funds rate due to the collateralized nature of the transaction.
- F. **Bankers’ Acceptances:** Bankers’ acceptances are short-term, negotiable securities issued by a bank for a customer, usually to finance export/import financing. The “draft” can be traded in the secondary market and represents an outstanding liability of the issuing bank. They are typically traded at a discount from face value.
- G. **Federal Funds:** Federal funds are reserve balances of insured banks at Federal Reserve Banks that are used to meet reserve requirements. Excess funds are loaned overnight by banks at the “fed funds rate” to other banks with insufficient reserve balances.

Asset Classes

There are various investment avenues available to an Investor. Investment professionals call these various types of investment opportunities: "Asset Classes".

You are already familiar with most of these and you may smile as you see them appear below:

- . Asset Class # 1 – Equity
- . Asset Class # 2 – Debt
- . Asset Class # 3 – Cash and Deposits
- . Asset Class # 4 – Real estate
- . Asset Class # 5 – alternate investments

Each of these classes of investments offers benefits which can be summarized below:

- ✓ Equity Shares yield Dividends – and there is a possibility of an Increase in the value of shares.
- ✓ Fixed Income yields Coupons - and there could be a Possible increase in value: but that is not the dominant theme.
- ✓ Cash held with banks (Bank Deposits) are Low Returns/ Low Risk investment opportunities. The same is largely true of other investments made in money market instruments such as Commercial Paper and Treasury Bills. There is a very low possibility of variation in value of investment.
- ✓ Real estate yields rental income. Value appreciation is a possibility. It is however an Illiquid Investment.
- ✓ Alternate Investments are High Risk strategies and could cover a range of investment categories and are known to include art and horses. Alternative Investments are designed to deliver returns/ growth in any circumstance, by choosing any asset class and strategy that has the promise of investment performance.

While you now have some familiarity with investments, you would also have noticed that:

- ☑ The flow of dividends and/or coupons is dependent on quality of the company. It requires skills to correctly assess quality: and even then one cannot be sure. ☑
The economy has to be monitored as well
- ☑ Businesses respond to economic conditions in different ways. What will be the impact on a company in which we hold a bond/share? Will it impact dividends/ coupons, repayments?
- ☑ Market behavior has to be factored in.
- ☑ Markets go through phases. Optimism about the economy in a bull phase may or may not materialize. The same is true of pessimism in a bear phase.

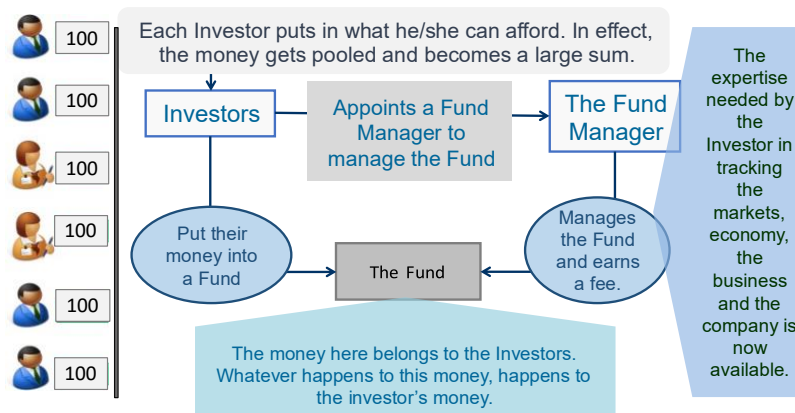
Investing is serious work which involves the hard-earned money of investors. In addition to the above considerations there are many other factors which have to be taken into account.

There is one other aspect which impacts the ability to make investments. Some opportunities require a minimum size of investment.

The shares of top class companies can require between \$ 200 to 1,000 and beyond apiece. Investment in Government Securities requires Us \$ 5 million at a time. A Retail Investor may have about \$. 1,000/- to invest at a time. A Mutual Funds as an investment vehicle help address such issues.

How Funds Work

Here is how Funds work for the Investor: Each Investor puts in what he/she can afford. In effect, the money gets pooled and becomes a large sum. Investors put their money into a Fund. Then they *Appoint a Fund Manager to manage the Fund* and earns a fee, from doing so. The money in the fund belongs to the Investors. Whatever happens to this money, happens to the investor's money.



The Fund and the Fund Manager

Vanguard is a Securities & Exchange Commission registered Fund Manager. There are over 500 such entities registered in USA alone. Each Asset Management Company registered with SEC has/ may have several such investment schemes. This brings the available number of MF schemes to several thousands.

Vanguard 500 Index Fund is one of the Funds managed by Vanguard the Fund Manager. Every Fund / Scheme offered to the public has to approved by the Market Regulator: in USA the SEC.

The Structuring of Funds

Each Investor puts in what he/she can afford. In effect, the money gets pooled and becomes a large sum. The expertise needed by the Investor in tracking the markets, economy, the business and the company is now available. The money in the investment company / trust belongs to the Investors. Whatever happens to this money, happens to the investor's money.

1. Investors own the Fund
2. Everyone else associated earns a professional fee
3. The pooling, the risks and the returns are "mutual" /shared/ commonly belong) to those who own the Fund
4. Fund is invested in a portfolio of marketable securities which reflects the investment objective of the Fund

The Concept and its Application:

The previous discussion suggests that the investors approached and appointed the Fund Manager. This is conceptually correct.

Practically speaking it works different. The Fund Manager has an idea. The idea typically is a theme:

- . High growth
- . Dividend Yield
- . Fixed Income etc.,

The Fund Manager puts these thoughts into a document. This "Offer Document" is publicized to the investing public . If the public invests in response to this Offer Document the document becomes an instruction from the Investor to the Fund Manager.

The Fund Manager is now bound by the investment mandate which originally formed part of the Offer Document that was originally drafted by the Fund Manager. Offering to the public requires permission from the Market Regulator.

To sum it up, Mutual Funds (also known as 'collective investment schemes' pool the resources of a large number of investors, with the aim of pursuing a common investment objective. This pooling of funds brings a number of benefits, including:

- ✓ Economies of scale;
- ✓ Diversification;
- ✓ Access to professional investment management;
- ✓ Access to geographical markets, asset classes or investment strategies which might otherwise be inaccessible to the individual investor;

	Weighted Average Annual Fee %	
Fund Type	Active Funds	Passive Funds
U.S. Equities	0.73%	0.11%
Sector Equities	0.88%	0.27%
Allocation	0.71%	0.15%
International Equities	0.88%	0.23%
Taxable Bond	0.56%	0.13%
Municipal Bond	0.51%	0.24%
Alternative	1.36%	0.86%
All funds	0.72%	0.15%

✓ The benefit of regulatory supervision; and ✓ In some cases, tax deferral.

The Fund Manager's Motivations

A fund manager earns a fund management fee which is a percent of the assets managed by it. It has no benefit from the

performance of the fund other than to burnish its credentials. It does not also face any losses if the fund performs poorly. Its asset management fee is fixed.

USA data by Morningstar. Passive Funds

Fund Types - Structure as a Legal Entity

Unit Trusts

In a Unit Trust structure the Fund is a separate entity in which units are issued to investors.

In the structure of an Investment Company the Fund is a company in which shares are issued to investors. The different forms make a difference to how a fund is accounted for. The investment holdings in Unit Trusts are the focus of accounting and valuation. The whole entity in the company form is owned by investors. The accounting and valuation is of the company and its shares. *Investment Companies*

This form of creating Mutual Funds is the approach in the USA. The company has different "Share Classes". Investor classifications are on the basis of how the investor made the investment.

- ✓ Share Class X consists of Direct Investors: Higher Charges (e.g.:3% initial charge). No commission needs to be paid to any agent. Fees are neither too low, nor too high.
- ✓ Share Class Y consists of Investors operating through Independent Financial Advisors. There is a 5% initial charge. The IFA earns commission; or trail fees if the investor stays invested. It has the highest fee among all the share classes.
- ✓ Share class Z consists of Institutional Investors: There is a minimum 'per investment' size. It offers the lowest fee structure.

Ranked by AUM on 8/2/19	Company Name	AUM (in Billions)	Date
1	Black Rock Funds	\$6,840.0	6/30/2019
2	Vanguard	\$5,200.0	1/31/2019
3	Charles Schwab	\$3,700.0	6/30/2019
4	State Street Global Advisors	\$2,810.0	3/31/2019
5	Fidelity Investments	\$2,459.0	3/31/2019
6	JP Morgan	\$2,100.0	3/31/2019
7	Capital Group	\$1,860.0	3/31/2019
8	BNY Mellon (Dreyfus)	\$1,800.0	3/31/2019
9	PIMCO	\$1,760.0	3/31/2019
10	Amundi Asset Mgmt	\$1,650.0	6/30/2019

Investors can also be classified on the basis of their investment horizon. Class A consists of longer term investors. They pay lower entry and other fees. Class B consists of shorter term investors. They pay higher entry and other fees, relative to Class A.

If a short term investor holds his investment for long he qualifies as a Class A investor and is automatically reclassified.

Fund Types

Open & Close-Ended Funds

When each investor puts in money, he/she gets “Units” of “Shares”. (We shall use the term ‘share’ and you should understand it as interchangeable with the term ‘unit’.) This share represents the investment made. Many such share are created as many investors put in money. All share have the same rights and are identical to each other in so far as ownership and value of the ownership is concerned.

The different classes of shares discussed previously have an impact on the fee structure. The fee impacts the net return to the investor. An investor in a Fund holding a Class B share, will pay more fees, therefore earn a lower net return, caused only due to the fee level. From the investment returns perspective there are no differences.

Two investors invest \$ 10; one in a Class A share and the other in a Class B share. The value appreciates to \$ 12. The net return to the Class A shareholder will be \$ 12 minus a lower fee; the Class B shareholder will get a net return of \$ 12 minus a higher fee.

The number of shares allotted to an incoming investor are a factor of the price of share – a concept we will discuss later.

Shares in an Open-ended Fund:

Money flows in and out continuously. New shares are issued when new investment comes in. Share are cancelled when an investor takes out its investment.

Shares in a Close-Ended Fund.

No new investments are permitted in a Close Ended Fund. The number of shares remain the same and the number of shareholders remain the same as at the beginning. If the rules of the fund permit, additional shares can be allotted to existing holders.

Such funds may be listed on an exchange to provide liquidity to investors and are called Exchange Traded Funds. Such a listing is not essential; but it is done to make the scheme attractive to investors.

Some Legal Terminologies

Funds in Europe are often called UCITS as they are registered under EU UCITS regulations covering mutual funds.

International Funds tend to be registered in offshore locations of which Luxembourg is among the most popular. Open-ended investment companies known as a SICAV (Société d’Investissement à Capital Variable).

In some countries / jurisdictions one may come across the term OEIC. This is the acronym for Open-ended Investment Companies, a term which is self-explanatory.

The fundamental concept behind a mutual fund remains unchanged, regardless of the legal structure and names seen around the world.

Fund Type as a Theme: Equity, Debt, Cash and Hybrid Funds

The character of a Fund is determined by where the money is invested. The money can be invested only as per the Offer Document and the restrictions contained in that.

If the Offer Document says the scheme will invest only in shares of companies, then the Fund Manager can invest the money only in Equity and nothing else. Such a Fund is an Equity Fund.

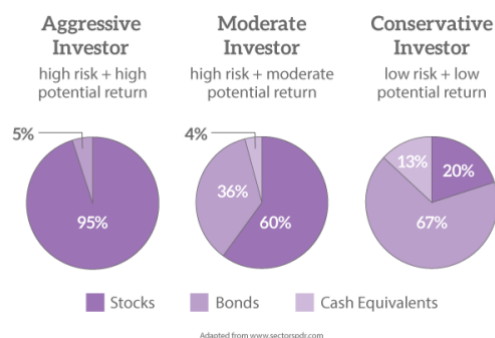
If the Offer Document says the scheme will invest only in debt instruments, the Fund Manager can invest only in Debt/Bonds and nothing else. Such a Fund is a Debt Fund.

If the Offer Document says the scheme will invest only in money market instruments, the Fund Manager can invest only in money market instruments; nothing else. Such a Fund is a Cash or a Liquid Fund.

If the Offer Document says the scheme will invest only in a mix of Equity and Debt. Such a Fund is a Hybrid Fund. For e.g.: it may be specified that the investment in equity and debt should be between 40% to 60%. Some possible combinations of investments in this example:

- Equity 40%; Debt 60%
- Debt 40% Equity 60%
- Debt 50%; Equity 50%

The use of strategies is a topic called “Asset Allocation” which is not covered here. From a Sales & Marketing perspective (to attract investors) the Fund Manager may name the schemes in different ways. The real character of a scheme can only be ascertained by referring the Offer Document and looking at the stated investment strategy and mix. That is one reason why reading the Offer Document is important for investors.



Benchmarks for Comparing Mutual Fund Performance

A fund must be compared to a benchmark appropriate to the fund.

Cash funds invest in Short term money market instruments; and the performance is measured in comparison to the money market index.

Bond funds invest in Fixed Income Securities & bonds; and the performance is measured in comparison to the bond index.

Gilt funds invest in government securities and the performance is measured in comparison to T-bills or Tbonds.

Equity funds invest in a range of equities and the performance is measured in comparison to Nifty/Sensex/ the Dow Jones Industrial Average /the FTSE 100 etc.

Index funds invest in only those stocks which comprise the index; and their performance is measured in comparison to Nifty/Sensex/ the Dow Jones Industrial Average /the FTSE 100 etc.

Sectoral funds invest in Stocks of a sector: petroleum, banks, Fast Moving Consumer Goods, Pharmaceuticals etc and their performance is compared to the industry index.

Emerging markets invest in stocks of emerging markets and are compared to Morgan Stanley Capital International's – Emerging Market Index

Hybrid funds invest in a blend of investments in a certain proportion and are measured in comparison to investment related indexes blended in the same proportion.

Fund Themes		
Theme	Invests in	Performance to be measured by comparison to
Cash Funds	Short term money market instruments	Money market index
Bond Funds	Fixed Income Securities & bonds	Bond index
Gilt Funds	Government Securities	T bill / T Bond
Equity Fund	A range of equities	Nifty/Sensex/ DJIA/FTSE 100
Index Fund	Only those stocks which comprise the index	Nifty/Sensex/ DJIA/FTSE 100
Sectoral Fund	Stocks of a sector: petroleum, banks, FMCG, Pharma etc	Industry index
Emerging Markets	Stocks of emerging markets	MSCI - EM Index
Hybrid Funds	Blend of investments in a certain proportion	Investment related indexes blended in same proportion

Analyzing Fund Performance

Assume that the original investment is of \$ 100 and it grows by 30% to \$ 130. This looks good. Meanwhile the Index has gone from 8000 to 11200. This represents a 40% increase in market levels. Since the fund has appreciated less than the market the Fund Manager's is rated as having under-performed.

Let us consider a different scenario. The original investment is of \$ 100 and it grows by 30% to \$ 130. This looks good, as well. Meanwhile the Index has gone from 8000 to 9600. This represents a 20% increase in market levels. Since the fund has appreciated more than the market the Fund Manager's Score is an outperformance.

In a third scenario the original investment of \$ 100 shrinks to 40, a loss of 60%. Meanwhile the Index has gone from 8000 to 4800. This represents a 40% decrease in market levels. Since the fund has depreciated more than the market the Fund Manager's Score is an underperformance.

This method of assessing performance is called "relative" because it is relative to the performance of the market. This leads to the last scenario type which is interesting.

In this scenario, the original investment of \$ 100 shrinks to \$ 70, which is a loss of 30%. During the same period the Index has gone from 8000 to 4800 representing a 40% decrease in market levels. Since the fund has depreciated less than the market the Fund Manager's score is an outperformance.

To be called an outperforming fund manager when the fund value has gone down is not something laypersons can fully appreciate. It leads in to the discussion on hedge funds.

INDEXES

If indexes are so important in benchmarking performances we need to understand them better.

An Index is a Barometer or an Indicator. A thermometer can tell you how hot (or cold!) it is outside. A different kind of thermometer can tell you if a person is unwell. A barometer can tell you if the weather is going to get dry or whether it is going to rain.

An Index of the markets (A Stock Market Index) can tell you something about what is happening in the market: and by extension in the economy.

Building an Index

You have to build the index, such that it tells you what you want to know. If you want to know about a person's wellness, you build a reference that tells you about body temperature. If you want to know the state of the economy and the market, you have to measure it.

If a Market Index is to indicate the state of economic health, you could measure the whole economy. That looks impossible! Nor is it needed.

Major Global Indexes

Index	Consists of	Relates to the Economy of
Hang Seng 50	50 stocks	HKSE listed
NASDAQ	100 stocks	Nasdaq listed
Kospi	200 stocks	South Korea
Nikkei	500 stocks	Japan
DJIA (The Dow)	30 stocks	USA industrial economy
S&P 500	500 stocks	USA
FTSE 100	100 stocks	UK
DAX	30 stocks	Germany
MSCI EM Index	Market capitalisation of 26 economies	"Emerging Economies" including Brazil, Russia, India, China, Vietnam, Mongolia
		Passive investing can also combine these indexes in different proportions.

Index Funds

Index funds are those funds which track the performance of an index. This is usually carried out by either investing in the shares comprising the index or by buying a sample of shares making up the index or a derivative based on the likely performance of the index. The value of the fund is linked to the chosen index so that if the index raises so will the value of the fund. Conversely, if the index falls so will the value of the fund. In the Indian context, the index funds attempt to copy the performance of the two main indices in the market viz., Nifty 50 or Sensex. This is done by investing in all the stocks that comprise the index in proportions equal to the weightage given to those stocks in the index. Unlike a typical MF, index funds do not actively trade stocks throughout the year. They may at times hold their stocks for the full year even if there are changes in the composition of index; this reduces transaction costs. Index funds are considered, particularly, appropriate for conservative long term investors looking at moderate risk, moderate return arising out of a well-diversified portfolio. Since index funds are passively managed, the bias of the fund managers in stock selection is reduced, yet providing returns at par with the index.

Exchange Traded Funds

An exchange-traded fund (ETF) is an investment fund, usually designed to track a particular index. This is typically a stock market index, such as the FTSE 100. The investor buys shares in the ETF which are quoted on the stock exchange, like investment trusts. However, unlike investment trusts, ETFs are 'open-ended funds'. This means that, like OEICs, the fund gets bigger as more people invest and gets smaller as people withdraw their money. ETF shares may trade at a premium or discount to the underlying investments, but the difference is minimal and the ETF share price essentially reflects the value of the investments in the fund. The investor's return is in the form of dividends paid by the ETF, and the possibility of a capital gain (or loss) on sale.

Hedge Funds

"High Net Worth Individuals" in particular do not appreciate performance relative to markets, especially when their principal is eroded but the Fund Manager claims outperformance.

Hedge Funds are high risk funds which try to perform regardless of market situations: The Hedge Fund manager is best described as **The Top Hedge Fund Managers of the USA** an "absolute returns manager". This focus on garnering returns regardless of market conditions is attractive to some of the 'High Net Worth Investors' and certain institutional players.

In exchange for taking on such a responsibility, the Hedge Fund manager shares in the profits of the fund. Typically, the fee structure is 2% per annum as an asset management fee plus 20% profit share. There are no restrictions on investments and strategies.

They use Derivative strategies and are therefore risky. Since they are risky they cannot be offered to the public at large.

Since a variety of strategies are open to Hedge Funds they hope to gain from declining as well as rising markets. This leads some to describe traditional mutual funds as "long only" funds as compared to Hedge Funds which have strategies for declining markets as well.

Despite all this, it is not as if Hedge Funds cannot make losses. They often do. All investments are subject to market risk regardless of the stated intention of the Fund Manager and its capabilities.

NAME	FIRM
David Tepper	Appaloosa Management
Steven Cohen	SAC Capital Advisors
John Paulson	Paulson & Co.
James Simons	Renaissance Technologies
Kenneth Griffin	Citadel
Israel (Izzy) Englander	Millennium Management
Leon Cooperman	Omega Advisors
Lawrence Robbins	Glenview Capital Management
Daniel Loeb	Third Point
Raymond Dalio	Bridgewater Associates
Paul Tudor Jones II	Tudor Investment Corp.

Introduction to Derivatives

Derivatives are an important class of financial instrument and represent a financial market segment that has long exceeded the growth rates of both equity and bond markets. Derivatives are very different from securities. They are financial instruments that derive their value from that of an underlying financial product, commodity or market variable. While derivatives instruments are mainly designed to protect against and manage risks, they are often also used for arbitrage, speculative and investment purposes. They facilitate the pricing of risk and play an important role in price discovery across financial markets. A derivative is a contract concluded between a buyer and a seller concerning a transaction to be affected at a future point in time. The life of a derivatives contract (i.e. the period of time between the conclusion of the contract and its fulfilment or termination) varies greatly, ranging from a few days to several decades. In the course of its life, the value of the derivatives contract will fluctuate in line with the fluctuations in the value of the underlying asset.

Role of Derivatives

The economic role of underlying markets is investment and consumption. In contrast, the economic role of derivatives is risk management.

The market price of underlying assets is subject to change by demand-supply forces. All market participants know what the current market price is, but every market participant is not certain about what would be the price on a future date. This uncertainty is called price risk or market risk. Derivatives are tools to manage this price risk.

We must note here that risk is related to the return. Return is the change between the current price (which is known) and the future price (which is unknown). The return could be favourable, resulting in profit; or unfavorable, resulting in loss. Profit and loss are thus two faces of return: profit is positive return and loss is negative return. Whether there will be profit or loss is uncertain, and this uncertainty is called risk. Thus, risk is defined as the uncertainty about future return.

Derivatives are risk management tools for price risk. They are not financing, liquidity or cash management tools. Examples of financing tools are bonds and equity instruments; and examples of liquidity or cash management tools are money market instruments (e.g. repo/reverse repo in FIS market, FX swap in forex market, etc). Derivatives cannot be financing or liquidity or cash management tools because they do not involve cash outlay at the outset.

Business situations that demonstrate the use of Derivatives

A. Buyers of Products

Golden Bakes is looking to launch a range of branded cookies nationwide. As a part of its marketing strategy it wishes to price its cookies lower than national brands. It also needs to hold its price steady for the next 18 months.

How is Golden Bakes to hold prices steady if it does not know the price of wheat for the next 18 months? It needs to fix the price of inputs as far into the future as possible. It should not happen that after it fixes the sale price, the price of wheat goes up significantly. In this case, Golden Bakes will either make a loss; or it will have to increase the price – thereby damaging its marketing strategy.

To further compound its problem, Golden finds that the price of wheat has been all too unpredictable.

B. Sellers of Products

Saudi Arabia would like to make sure that the next 100 million barrels of oil it sells generates at least USD 6 billion in revenues. (\$ 60 / barrel).

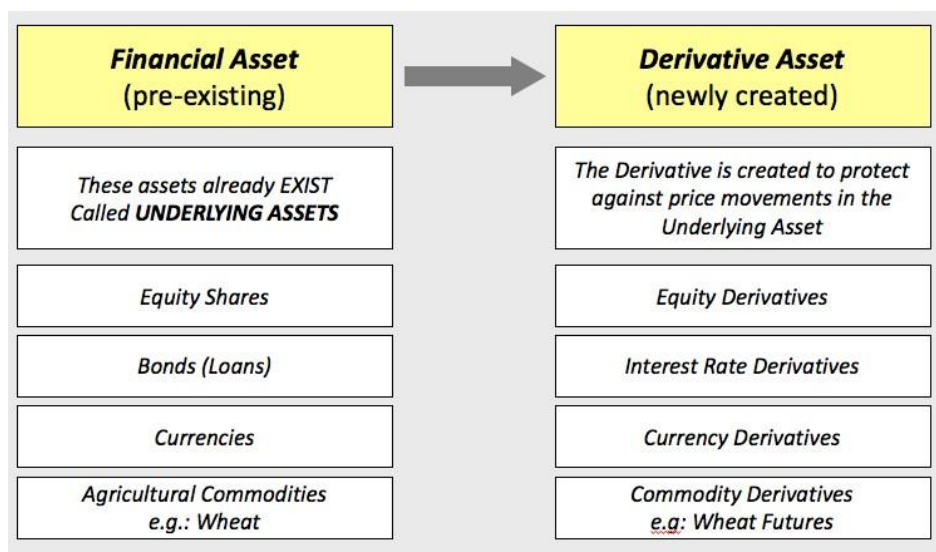
As an oil producing state, the Kingdom of Saudi Arabia is heavily dependent on oil revenues. If oil prices drop, the country goes into deficit. Oil used to be closer to \$ 140/- (2007). In 2015 it has hovered as low as \$ 40/-. The fluctuations in oil price confound the best brains in the business.

The Role of Derivatives – applied

Golden Bakes will buy wheat at a price agreed today. The wheat and cash will exchange hands at the settlement date in the future. With the price thus fixed, Golden Bakes will know at what rate to price its biscuits.

Saudi Arabia will sell oil at a price agreed today. The oil and cash will exchange hands at the settlement date in the future. With the sales price fixed, Saudi can manage its budget based on this price.

Classes of Underlying Products and Derivatives



Basic Trade Characteristics The Separation between Trade and Settlement Dates

Derivatives are traded on a particular date with an agreement to settle the trade sometime in the future.



There exists a price and a future expectation of price for the underlying asset today: the Trade Date. There emerges a price in the cash market on that future settlement date. A difference between the two is inevitable and there lies story of derivatives pricing.

Types of Settlements:

It is important to understand the types of settlements to understand how derivatives operate.

Physical Settlement

If a product is physically settled, it means there will be TWO flows.

The BUYER must pay CASH for the purchase. The SELLER must deliver SECURITIES for the sale.

In Cash Markets (the market for immediate delivery) you can only carry out physical settlements.

Cash Settlement

In a cash settlement, there is only one flow: the loser in trade must pay the gainer in the trade in cash. It is sometimes called financial settlement. There is no difference in the two phrases.

Who loses in a Trade?

So, how to determine who is the loser in a trade? This is done by comparing:

- the Agreed Price which was fixed on the Trade Date with the
- Market Price which is fixed on the Settlement Date

If the Agreed Price is HIGHER than the Market Price the loser is the person who “Agreed to Buy” (colloquially referred to as the buyer). For example:

- Agreed to buy oil at \$50 a barrel on Jan 1. Market
- price on settlement date: \$ 45.

The person who agreed to buy at \$50 has lost \$5 per barrel and must pay this amount per barrel to the person who agreed to sell. If the Agreed Price is LOWER than the Market Price the loser is the person who “Agreed to sell” (colloquially referred to as the seller).

For example:

- Agreed to sell oil at \$50 a barrel on Jan 1. Market
- price on settlement date: \$ 55.

The person who agreed to sell at \$50 has lost \$5 per barrel and must pay this amount per barrel to the person who agreed to sell.

Types of Derivatives

There are four types of Derivatives:

- ✓ Forwards
- ✓ Futures
- ✓ Options
- ✓ Swaps

A. Forwards

An agreement to buy (sell) an agreed quantity of a particular product at an agreed price on the trade and to be settled at a date in the future. This agreement is made between the two parties one-to-one; i.e. Forwards are OTC trades.

Example: an agreement to buy 1000 barrels of oil, made today, at Rs. 3,750 per barrel. Settlement (cash and oil to be exchanged) a month from now.

B. Futures

Structurally, it is exactly the same as above.

A futures is traded on an exchange (as opposed to OTC)

C. Options

A right [but not an obligation] to buy (sell) an agreed quantity of a particular product at an agreed price on the trade and to be settled at a date in the future.

The right to buy is termed a CALL; the right to sell is termed a PUT. The holder of an option uses it only if it is favourable.

D. Swaps

Swaps are agreements between two parties to exchange cash flows in the future according to a prearranged formula. They can be regarded as portfolios of forward contracts. The two commonly used swaps are:

Interest ■ rate swaps Currency swaps

- **Application of Forwards – a simple derivative: Fx example.**

For an Importer

L&T buys equipment worth USD 100,000 from Caterpillar of USA receiving 3 months credit.

On 01/10/XX - Spot Rate: 1 USD = INR 60/-

Worries for the L&T Treasury Head:

1. Will INR appreciate or depreciate vis-à-vis USD?
2. What if rupee goes to Rs. 80/\$? Will I end up paying Rs. 8 million instead of Rs. 6 million three months from now?
3. Can I crystallize my liability? Can I hedge my risk?

Solution:

Enter into a Forward
Buy USD 100,000
Delivery 31/12/20XX
@ 1 USD = INR 60.50

The Forward Contract is entered on 01/10/XX, when L&T comes to know of the obligation to pay. The USD and INR change hands only on 31/12/XX which is the contracted date. Now the Treasury Head knows that on 31/12 INR 6.05 m is needed and that it will convert to the required \$ 100,000.

On Settlement Date (31/12/XX) :

L&T will transfer
INR 6,050,000 to MyBank.
MyBank will transfer USD
100,000 to L&T.
A forward is Physically Settled

For an Exporter

Glaxo Smithkline of UK sells capsules worth USD 1 m to Walmart in the USA. Glaxo extends 3 months credit.

On 01/10/XX - Spot Rate: 1 GBP = 1.95 USD

Worries for the GSK Treasury Head:

Will GBP appreciate or depreciate vis-à-vis USD?
What if GBP/USD goes to 3/- Will I get only GBP 333,333 instead of GBP 512,000 three months from now?
Can I crystallize my asset? Can I hedge my risk?

Solution:

Enter into a Forward:

SELL USD 1000,000 –
Delivery 31/12/20XX
@ 1 GBP = USD 2

The Forward Contract is done on 01/10/XX, when GSK comes to know how much it is to get. USD and GBP change hands only on 31/12/XX which is the settlement date.

Now the Treasury Head knows that on 31/12 GBP 500,000 will arrive and plan expenses/cashflows accordingly.

On Settlement Date (31/12/XX) :

GSK will transfer USD 1 m which it gets from WalMart to MyBank. MyBank will transfer GBP 500,000 to GSK.
The forward is a Physically Settled

The Forward Contract is defined as

An agreement
Today
To buy or to sell
A particular product /financial asset
In exchange for money
At an agreed price
At an agreed future date

Margining in Derivatives Contracts

Margins are needed as a “security” by the exchange to ensure that both parties to a trade stick to their obligations. Who is more likely to default: a buyer or a seller?

Anyone who could lose is a potential defaulter, so s/he need not pay for losses made. This can happen to both buyers as well as sellers. Therefore, both parties to a trade need to place margins.

An Initial Margin is required to be placed (paid in) as soon as a trade is initiated. The exchange may specify:
- Margin as a % of Contract Value as the initial margin OR - Margin as a sum of money per contract.

For instance, for Corn, the margin required is \$ 1,650 per contract which works out to approximately 9% of contract value at current price levels.

Once a trade has been initiated the trader makes or loses money as the market prices move.

Buys one contract on Gold at \$1,560/-.

i. If markets, go to \$ 1,570/- he is a gainer. ii. If markets, go to \$ 1,550/- he is a loser. iii. It should be remembered that this is \$ 10 per ounce and the contract is for 100 oz. iv. As a trader makes losses the initial margin that he placed gets eroded. Conversely, if he makes gains the margin account swells

A. Initial Margin (IM)

i. Is a good faith margin ii. Paid by both Buyer and Seller (why?) iii. Is set by the Exchange for ET Derivatives. No interest on margins. iv. Is set by mutual agreement for OTC Derivatives. In OTC margins in cash may fetch interest at an agreed rate.

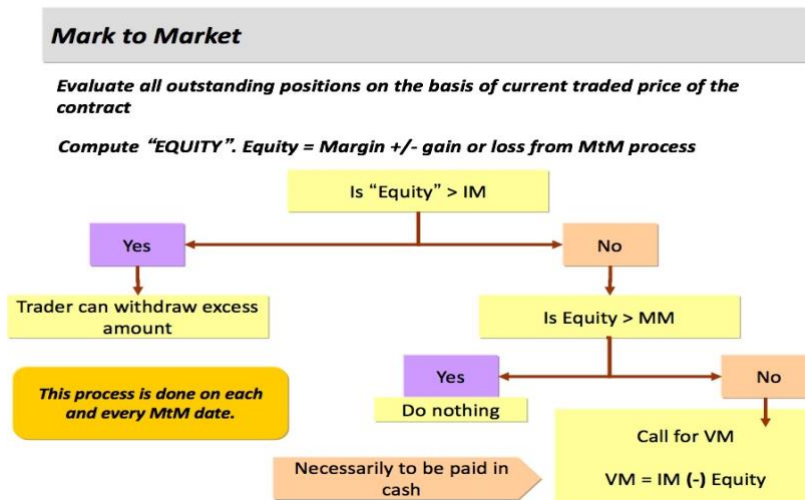
B. Maintenance Margin (MM)

Is the level below which margin should not drop. The initial margin is constantly adjusted by losses and as a result it drops. This drop should not go below MM level.

C. Variation Margin (VM)

Positions are 'marked to market'. If MM level is breached, or if no MM is set, then the Variation amount must be topped up immediately.

Evaluation of MtM positions follows the rule-set given below:



Listed Derivatives – Futures Contract

A futures contract is simply a forward contract traded on an Exchange.

Its features are:

- Listed and Traded on an exchange
- On various underlying assets as offered by the Exchange
- On standardized terms and conditions set by the Exchange
- All operational features seen in an EXCHANGE are seen in futures orders, trades, confirmation, settlement

Forwards & Futures - Differences & Similarities

Forwards & Futures are Identical

- ✓ Both are obligations.
- ✓ Whether to buy or to sell. ✓ A particular financial asset ✓ In exchange for money.
- ✓ To be made on future date (the Settlement Date)
- ✓ At a price agreed today (on Trade Date)

Forwards & Futures are different

FORWARDS	FUTURES
Directly dealt between two parties	Dealt through the exchange
For any asset	For assets approved by the exchange
For any quantity	For standard lot sizes
Any agreed settlement date	Standard settlement dates specified by the exchange
Both parties settle the transaction between themselves directly.	Clearing and Settlement is through the mechanisms of the exchange.
Since settlement is direct, parties should know each other through a risk assessment process.	Since the settlement is through exchange, trade and settlement are both anonymous.
Settlement is physical: exchange money for asset	Settlement can also be in cash: exchange the difference in price. The rules of the exchange give (or don't give) choice.

Trading Ecosystems

We pioneered this term to describe and capture the fact that systems that are born in the same 'gene pool' are blessed with interoperability. That is because all components of the system are designed at the same point in time to work with each other, right at the beginning.

Any new components added later will need to have same data structures, formats, communication protocols that is already established in the ecosystem.



This perspective on the 'Trading Ecosystems' becomes important when we look at market changing events like EU integration under MIFiD and USA market integration under the National Market System.

In both those instances, Trading Ecosystems are 'cut open' and it is now required that a Depository in Netherlands be able to accept a settlement instruction from a broker in Portugal, for instance. The Portuguese broker we would accept has systems that work beautifully with BVLP the Portuguese stock exchange and Interbolsa the Portuguese depository. Can this brokerage do so equally flawlessly with the Dutch CSD or Euroclear its successor?

Such issues and technology build-outs dominate US and European market infrastructure evolution since 2007-08 and will continue to do so for a few more years.

Classification of Products & Markets

Types of Products based on Settlement Methods

Different products in the market are cleared and settled in different ways.

While products are generally thought of in terms of equity, fixed income, derivatives etc. from an operations perspective it is useful to think of them in groupings based on the settlement methods.

The first classification to consider is Cash vs. Derivative market.

1. The Cash Market: this is the market for IMMEDIATE delivery. Buyers must pay for what they have bought and sellers must deliver the securities they sold. Usually the time provided for this is Trade Date plus up to 3 days. i.e.: T+1, T+2, T+3. There are a few instances like commodities where settlement can go up to T +15' but by and large immediate delivery means within 3 days, as agreed for the trade.

A cash trade in Microsoft has to be settled in NYSE on a T+2 basis in the USA, for example.

2. The Derivatives Market: this is the market for deferred delivery. Buyers and sellers merely AGREE to buy/sell. The actual delivery happens in the future, on an agreed date. Typically, this settlement date is beyond the time line set for immediate delivery.

Market Types

The other classification to consider is Exchange vs. OTC marketplaces.

1. Exchange trades are highly structured. There is a specified method by which clearing and settlement happens.

Exchanges provide trade and settlement infrastructure for Cash products as well as Derivative markets. In understanding the trade lifecycle and settlement requirements for such trades, we simply need to follow the rulebook of the concerned exchange.

2. OTC trades are directly agreed between two counterparties to a trade. The trading platforms may be automated. However, those are only trading platforms and do not offer any settlement, settlement guarantee. Most of them are now linked to settlement platforms. However, the distinction is that trade and settlement are not integrated as it is on a Stock Exchange like NYSE.

OTC trades have now to be further classified based on recent regulatory changes.

Cleared Trades: trades for certain products like Credit Default Swaps and Interest Rate Swaps have to be necessarily cleared using Central Clearing Counterparties (EuroCCP; CME Clearing are two examples of many such available platforms.) This was mandated by the Dodd-Frank Act in the USA and the European Market Infrastructure Regulation (EMIR) in the EU.

Bilateral Trades: trades for other products can continue to be settled between two parties directly as before.

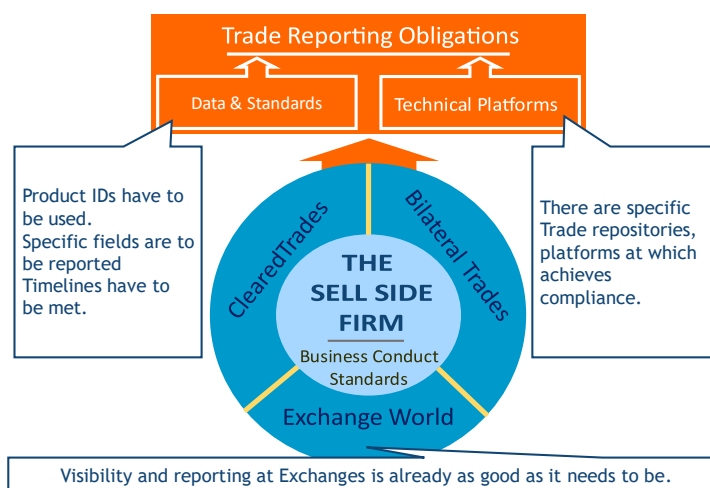
Combining the Cash & Derivatives on one axis and the Exchange & OTC markets on the other axis, we can develop the following chart. In this chart, the products you would expect to find in each box are included.

		Two types of Markets: in Product terms	
		Cash Markets/ Products	Derivative Markets/ Product
Three Types Of Markets: In Operations Terms	Exchange Trades	Equities	Futures: equity, currency Commodities, interest rates Options
	Cleared	Forex (<i>thru CLS Bank</i>) Money Markets Bonds (<i>if clearing /settlement platforms are preferred / available</i>)	Interest Rate Swaps Credit Default Swaps.
	Bilateral	Forex (<i>other than CLS</i>) Money Markets Bonds (<i>though settlement platforms are available</i>) Structured products	Forwards OTC Derivatives Customized Derivatives

Anything two+ products that fall within a box, have the same operational flows.

Data standards, flows & other characteristics: of no two boxes are identical.

We can now say that the markets world, post Dodd Frank, looks like this



The trade reporting obligations mentioned on the top of this chart are a post-trade requirement, which is a subject by itself! We provide here a high level perspective on Trade Reporting.

Market Structures & Trade Reporting

The Market's Definition of Liquidity

Liquidity is, The presence of a large enough number of buyers, and sellers: such that no one buyer, or, seller can influence the price, in the market. Some of the features of a highly liquid market are:

1. Trades get executed fairly quickly
2. Spreads tend to be narrower
3. Markets tend to be fairer in pricing.

A liquid market is considered more successful, than illiquid markets. Since there are plenty of traders, and trading, happening such a market, it is more profitable, for the entity operating the market place itself.

Visibility of Liquidity in Marketplaces

In an Exchange, all trades are reported in great detail, in real time. In the O T C World, Trading Platforms are private, even if registered. They do not constitute a public market place. There is no visibility, on trades and transactions, completed there.

Private Trading Platforms are known as, Dark Pools There is no visibility on the liquidity available there: or on the availability, of buyers, and sellers, and at what prices, and quantities: nothing is known.

Public Markets, by contrast, are "Lit Pools" There is completely visibility, on the liquidity, the numbers of buyers, sellers, quantities, prices: and at every, and, any point in time.

Small Pools Of Liquidity Vs. Large Pools Of Liquidity

Illiquid Markets have the following challenges:

- ☑ Less True Price
- ☑ Potentially greater time to execute trade
- ☑ Greater spread

Liquid Markets have the following advantages which regulators like for smaller investors to have:

- A Truer Price
- Potentially lesser time to execute trade
- Smaller spread

The regulator is more concerned with protecting smaller investors and ensuring overall fairness and integrity in markets.

With Trade Reporting, customers can analyse and assess the liquidity in private markets, compared to the public markets, and, arrive at inferences, about what might be a better place to trade.

This reporting, is an attempt to level the playing field. Large players might trade amongst themselves, in a private market. This market may remain unknown, or never be accessible to the broader mass of participants.

Dark Pools, And The Problem, Of Orderly Resolution Of Markets

Some of the largest players in the market, are active on private Trading Platforms. If nothing is known of those trades and one, or, more of those players, go insolvent, how to find out the outstanding trades? How to resolve them in orderly fashion, without panic spreading in the market?

Trade Reporting, is also meant to be able to track, counterparties and, obligations, using such information. Visibility and, reporting, at exchanges is already as good, as it needs to be. However, there is little information available from Dark Pools.

Trade Reporting Obligations

There are Data specifications, and Standards, associated with trade reporting. There are Technical Platforms, associated with trade reporting. Product IDs have to be used. Specific fields are to be reported. Timelines have to be met.

There are specific Trade Repositories and platforms; reporting to these achieves Trade Reporting compliance.

Goals of Trade Reporting

So, Here Are Two Broad Goals, Of Trade Reporting

- ✓ Market Transparency
- ✓ Overcoming the effects of "Fragmentation of Liquidity"

Specific Dimensions of Trade Reporting

Latency: Firms have an issue with disclosing trade information, soon after a trade. Their strategies might be given away. Therefore, a **time lag** is provided for large trades.

Registration: Proliferation of unregistered **DTCC's Global Trade Repository provides reporting services which achieve** platforms, was a problem, now fixed with **registration of trading platforms being compliance with Trade Reporting Obligations** compulsory.

Size criteria is included to focus on small, regular deals. The large transactions are not the focus of transparency.

GTR - AMERICAS	DTCC's Global Trade Repository service (GTR) Americas, delivered through DTCC Data Repository (U.S.) LLC, is a Commodity Futures Trading Commission (CFTC) registered Swap Data Repository ("SDR").
GTR - CANADA	DTCC is dedicated to bringing greater transparency, and resultant risk mitigation, along with cost efficiency to the global derivatives market. Through the DTCC's Global Trade Repository (GTR) any customers with Canadian reporting requirements can achieve efficient and cost-effective compliance.
GTR - EUROPE	DTCC Global Trade Repository for Derivatives ("GTR") is dedicated to bringing greater transparency, and resultant risk mitigation, along with cost efficiency to the global derivatives market.

Orderly Liquidation: Trade reporting is expected to improve general market efficiency, and, integrity. It is also needed to support orderly liquidation. Trade reporting helps Create a database from which trade data, obligations of specific counterparties, can be worked out. There is no time sensitivity for this need: but Primary Economic Terms of a trade, can keep changing and need to be informed and updated.

Trade Repositories ensure the capture of trades, in specified products, regardless of the platform on which traded.

Data Warehousing: Controlling Systemic risks, contagion, and, achieving orderly liquidation, are goals of building a trade data warehouse **Types of Settlements:**

It is also useful to understand the types of settlements.

Physical Settlement

If a product is physically settled, it means there are **two** flows.

The buyer must pay cash for the purchase. The seller must deliver securities for the sale.

In Cash Markets (the market for immediate delivery) you can only carry out physical settlements.

Cash Settlement

In a cash settlement, there is only **one** flow: the loser in a trade must pay the gainer in the trade in cash. It is sometimes called *financial settlement*. There is no difference in the two phrases/ terms.

Who loses in a Trade?

So, how to determine who is the loser in a trade? This is done by comparing:

- The Agreed Price which was fixed on the Trade Date with
- The Market Price on the Settlement Date

If the Agreed Price is *higher* than the Market Price the loser is the person who “Agreed to Buy” (who has a *long position* in the instrument; colloquially referred to as the buyer).

For example:

- Agreed to buy oil at \$50 a barrel on Jan 1.
- Market price on settlement date: \$ 45.

The person who agreed to buy at \$50 has lost \$5 per barrel and must pay this amount per barrel to the person who agreed to sell.

If the Agreed Price is *lower* than the Market Price the loser is the person who “Agreed to Sell” (*who has a short position in the instrument*; colloquially referred to as the seller).

For example:

- Agreed to sell oil at \$50 a barrel on Jan 1.
- Market price on settlement date: \$ 55.

The person who agreed to sell at \$50 has lost \$5 per barrel and must pay this amount per barrel to the person who agreed to sell.

Trading Ecosystem in Detail

Let us now take a high level view of the various industry level infrastructure necessary to operate the securities marketplace.

Firm Client Management

If you have no clients, you have no trades and no settlements!

Firm Client Management refers to the interface between client and the investment firm, including:

- ✓ Sales Processes
- ✓ Client sign-on
- ✓ Advisory Processes
- ✓ Securing orders to buy/sell

The firm makes its product & service offering known to the client. The firm understands client needs. Research reports and advice are provided to strengthen the relationship. Orders are taken triggering the rest of the Trade Life Cycle.

The Client assesses the firm. Client agreeing to deal is a factor of how he perceives the firm. Research reports play a role in building the image of the firm. Client gives orders once he is sure the firm is the right one for him.

Trading systems

'Trading Systems' refers to any trading platform or method by which the firm completes buy /sell orders in the market place.

For some financial products the trading system is the Stock Exchange. A listing of such products is shared later. Exchanges are linked to other infrastructure that facilitate parts of the Trade Life Cycle.

NYSE, NASDAQ, LSE, Deutsche Bourse, NSE etc. are some of the leading examples of such trading platforms.

Trading in certain other financial products involves the two parties directly contacting & dealing with one another. The listing of such products is shared later. Counterparties handle the rest of the trade life cycle on their own, too. The automation of these steps to eliminate manual intervention is referred to as Straightthrough-Processing or 'STP'.

Clearing Systems

'Clearing System' refers to the method, process and technique by which the obligations of buyers as well as sellers are worked out. The system also matches the availability of cash with buyers to their obligations and of securities with sellers to their obligations. It sets the stage for the settlement which is to follow.

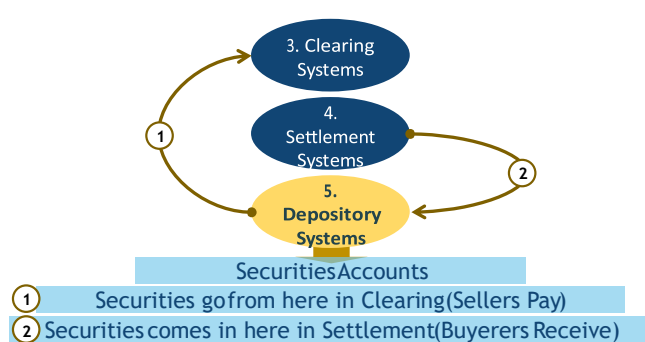
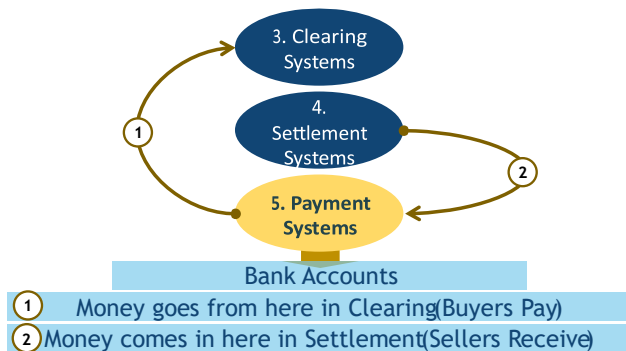
Settlement

'Settlement' refers to the step by which buyers get what they bought; sellers receive cash for what they sold. In other words, obligations to them are settled. For successful completion of this step it is necessary that the preceding Clearing Process went through flawlessly.

Payment

'Payment' involves the movement of money. This is obviously and necessarily through the banking system. It follows that the Clearing and Settlement systems have linkages through to the banking system to enable this.

- ✓ Money goes from Banks/ bank accounts into Clearing (for buyers)
- ✓ Money comes to Banks/ bank accounts in Settlement (for sellers)



Custodians and Depositories

Custodians and Depositories are where securities are held, analogous to the banking system. Just as money is held in bank accounts, securities are held with Custodians/ Depositories. Depository refers only to electronic registers and dematerialized securities. Custodian is a wider term.

- ✓ Securities go from Custodians/Depositories in Clearing (for sellers).
- ✓ Securities come in from Custodians/Depositories in Settlement (for buyers).

Firm Reporting Management

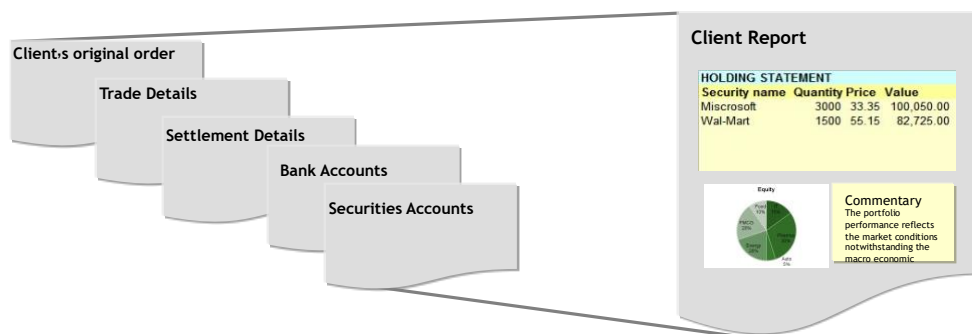
It is exceedingly important for the securities firm (brokerage/ investment bank/ broker) to get back to the client with cogent meaningful reports. These reports must cover:

- a. The transactions undertaken
- b. The prices and quantities bought or sold
- c. The holding statement: for money and for securities
- d. The valuation statement showing the performance of investment portfolios
- e. Returns earned statement showing the gains / losses

The complexity in generating such reports arises from the fact that:

- a. All orders don't get executed: some remain pending and get cancelled
- b. All trades are not in one single market, exchange or trading platform
- c. All statements of holdings may not be available at the same time
- d. All products are not valued in the same way
- e. All holdings are not in the same market or geography
- f. All valuations are not available at the same time
- g. There are multiple sources of data for each item in the report and each data source may have a different reporting format

Reporting back to the client however, has to be a single cogent report which makes sense to the client. Many clients are not from the financial world and everything has to be simple and intelligible to them.



Clearing and Settlement in the Exchange System

Trading, Clearing and Settlement are distinct process. The following definitions help see the distinction clearly:

- The Trade: Agreement to exchange securities for funds
- Clearing: Calculation of obligations
- Settlement: Delivery of securities and payment of funds

The following entities are involved in this process

- i. Exchange: Trade happens here: NYSE, LSE, Deutsche Borse etc.
- ii. Clearing Corporation: Clearing & Settlement happens through this entity: National Securities Clearing Corporation, Euroclear, etc.
- iii. Depositories: Securities are held here: DTCC in USA, CrestCo in UK, etc.
- iv. Banks: Funds are held here
- v. Clearing Members: Institutional Brokers who handle processing work for a set brokers allotted to them.

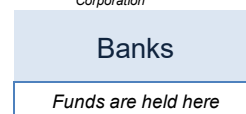
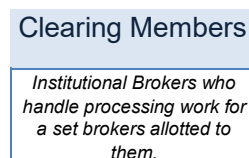


*NSCC: National Securities Clearing Corporation

The Clearing process

in brief

In the Clearing all parties traded Clearing Corporation.



Process, it is as if against the

The Calculation & brokers falling in one of the following two

- ☑ Some brokers will be Net Buyers in the overall
- ☑ Other brokers will be Net Sellers in the overall

Matching of obligations results in all categories:

In Securities operations parlance, both buyers and sellers must “settle” or “Pay-In” in the Clearing Process. A buyer’s pay-in is cash; a seller’s pay-in is of securities.

The clearing and settlement process begin with the Exchange downloading trade details to the Clearing Corporation. This flows to Clearing Members. They have some time to indicate a “Don’t know” status for any of the trades that they do not recognize. This happens through the Clearing Member passing on the data to the trading brokers themselves and receiving the input.

This chance of mismatch, while still technically possible, recedes as exchanges have become computer systems in which the exchange is the server and the brokers possess the terminal.

Net Buyers must pay-in/settle cash by transferring funds to the bank account of the Clearing Corporation.

Net Sellers must pay-in/settle securities by transferring the specific securities to the depository account of the Clearing Corporation.

At this stage a final computation is made to ensure that all funds and securities received in settle / 'Pay-In' are adequate to meet obligations if settlement is carried out.

In settlement:

☑ Net Buyers who previously paid cash receive securities. ☑ Net Sellers who previously paid securities receive cash.

This happens at Clearing Member level. Depositories separately intimate Clearing Members of inflows so that the concerned brokers are in turn intimated.

Banks separately intimate Clearing Members of inflows so that the concerned brokers are in turn intimated.

As far as the exchange/clearing corporation are concerned the cycle ends with credit to the broker. Broker's responsibility to onward credit the client is a separate matter.

Most exchanges of the world complete this process on a T+2 basis. The USA which used to operate on a T+3 basis till recently switched to T+2 on September 5, 2017.

The Single Securities Market

The EU introduced Target2Securities between 2014 -17 in a phased manner. When we look at T2S in the context of our Trading Ecosystem, this is the final step in creating an integrated market in securities.

After this, and taking into consideration the legal provisions of the regulation known as MiFID / MiFID II, a broker in Germany can freely sell to a customer in France. The order may be placed on the Amsterdam Stock Exchange. The counterparty could be in Greece. Each may have custodian arrangements in Spain and Italy, respectively. And yet, settlement will be completed on a T+2 basis.

This is essentially, a cutting open of each country's Trading Ecosystem and integrating them into a single pan-European Trading Ecosystem.

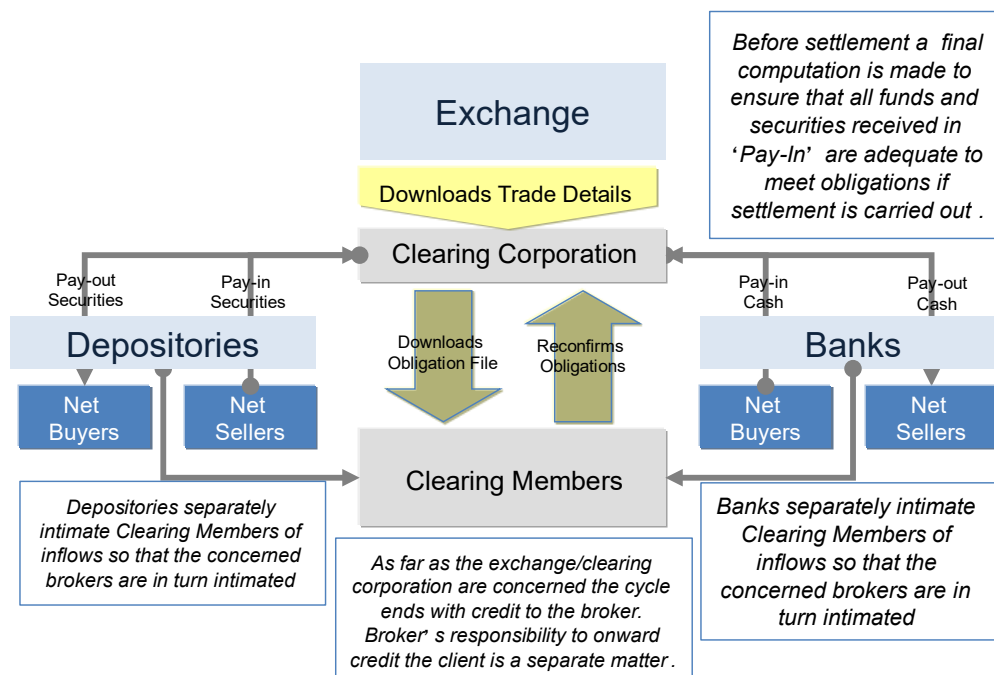
Failed Trades in the Exchange System

A failed trade is a situation in which a buyer fails to pay for securities; or a seller fails to deliver securities.

In a modern electronic exchange a Failed Trade cannot happen due to 'misunderstanding' of trade terms. When a buyer buys, the order is 'written' into the Trading Platform which is a central server. Corresponding to the buy, a seller has sold; which too is written into the server. The confirmation generated by the exchange is a print of the same record on the central server.

It is unlikely that the confirmation generated now will have errors in its two copies. This confirmation is the basis of all subsequent post-trade work preparatory to settlements. Any errors have to be highlighted on the day the obligations are notified by the Clearing Corporation.

When a trade fails, the position of the failed broker comes up for 'auction'.



Failure of the seller happens in the following situations:

- ☑ Shortages: where the quantity delivered is less than the obligation
- ☑ Bad Delivery
- ☑ Objections by counterparty

For failures of the seller: the securities are bought in an auction session, typically at a price higher than the market and to the financial loss of the broker who failed to deliver securities in the first place. The securities so bought are then given to the buyer in settlement of obligation to him.

For failures of the buyer: the securities are sold off in an auction session, typically at a price lower than the market and to the financial loss of the broker who failed to pay for the securities in the first place. The cash so realized is then given to the buyer in settlement of obligation to him.

Generally, a buyer's failure is considered *less* dangerous to the system because it is relatively easier to borrow money in the market.

Generally, a seller's failure is considered *more* dangerous to the system because it is not so simple to borrow shares.

Preventing Failed Trades

There are certain hygiene checks in the back office which help minimize the occurrence of failed trades. These are:

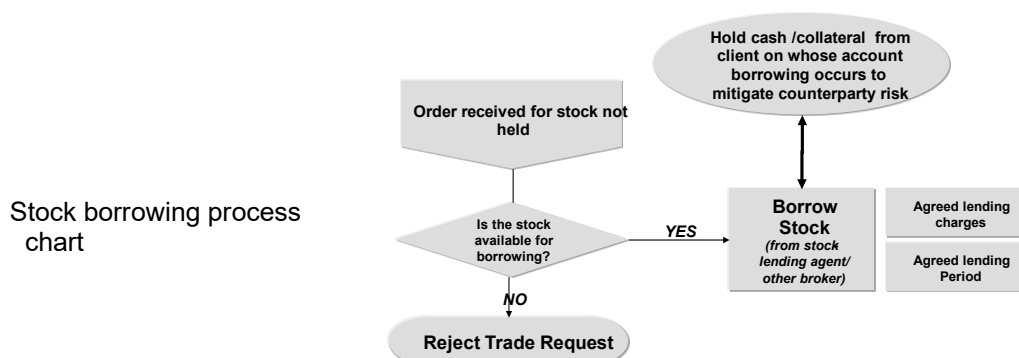
- a. Proper margining to be maintained for orders executed.
- b. Buyers should ensure they have cash/ sellers should ensure they have the security before entering into a trade.
- c. Ensure confirmations are sent; and checked when received.
- d. Pre-settlement instructions should be placed with depositories/bankers.
- e. The stock exchange's market discipline mechanism applicable for brokers is meant to ensure that the above checks are performed by brokers; brokers in turn are to ensure that their clients comply.

A broker whose positions come up for auctions risks a downgrade/action by the Exchange.

Stock-Borrowing: as a strategy or to prevent failed trades

The seller has to arrange for stocks before the settlement date. It places cash as collateral with a holder of the particular stock. It is agreed to return the securities on a fixed date and borrowing costs are paid to the lender of securities.

Reg SHO in the USA requires a broker to "locate" the securities before placing a sell order. Brokers do facilitate stock borrowing for their clients.



The seller (who borrowed the securities) will later on, buy the security in the market and return it to the security lender. It hopes to buy it back at a price lower than the sale price so that the stock borrowing is profitable. This does not always happen, with stock borrowers making losses as well. However, there are some spectacular instances of mega-profits with stock borrowing.

Traders try to assess that a security is trading for a lot more than it is worth and then execute 'shorting strategies' stock borrowing being one among them. See what David Einhorn did.

The Lehmann Short

David Einhorn of Greenlight Capital (a Hedge Fund) was of the opinion – in 2005/06 - that Lehmann Brothers was mis-stating its financials. He was sure this fact would emerge at some point and the stock price would tank. Greenlight borrowed Lehmann stock and sold it during that period. In 2008 when Lehmann went insolvent, Einhorn bought back Lehmann shares at one cent and returned the borrowed stock.

Greenlight made billions of dollars in the process!

Settlement Cycles and Record Dates

Benefits from ownership of a security (dividends, bonus, rights, buybacks, coupons on bonds, redemption by lottery) are available to only those whose names appear in the ownership registrar on a cut-off date. This date is known as the Record Date.

An investor should receive the securities before on the Record Date in order to appear in the owner's list.

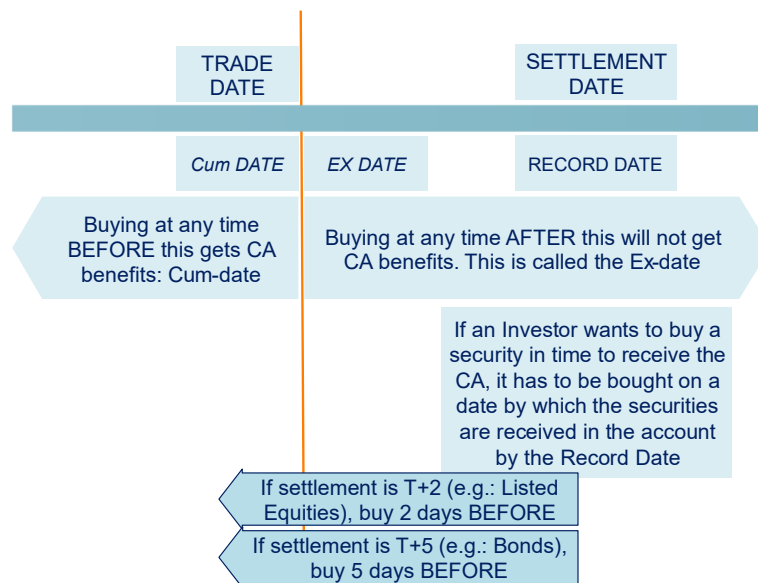
An investor who buys a security on a Monday will receive it on Wednesday in a T+2 system. If the record date is on the Tuesday, this investor will not receive any benefits.

The Ex-Date refers to the first trading date on which the benefits are no longer available to the buyer of a security.

The Cum-Date refers to the last trading date on which the benefits ARE available to the buyer of a security.

Every stock exchange publishes the cum- and ex- dates security-wise for the convenience of market participants. It can easily be calculated as Record Date minus Settlement Cycle. That would give us the Cum-Date. Next trading date is the Ex-Date.

In certain markets there is a practice of Buyer being eligible for benefits even after the published Cum-Date. For this, the terms of trade are notified between counterparties. It is outside the normal arrangements and accepted general market practice. It is an exception to the rule.



Differences in the Ecosystem for OTC Trades

The Lifecycle for Exchange and OTC Trades are NOT identical. Certain activities belong in one lifecycle and not the other. Criticality of steps and actions is higher with the OTC Trade Lifecycle.

The Ecosystem presented earlier needs to be modified for the OTC Trades as below:

1. Trading Platforms: these are standalone platforms
2. Documentations and Conventions: counterparties trade with each other only if they have executed specific one to one documentation.
3. Clearing and Settlement is directly with one another; except where it is done through CCPs.

A. Trading Platforms

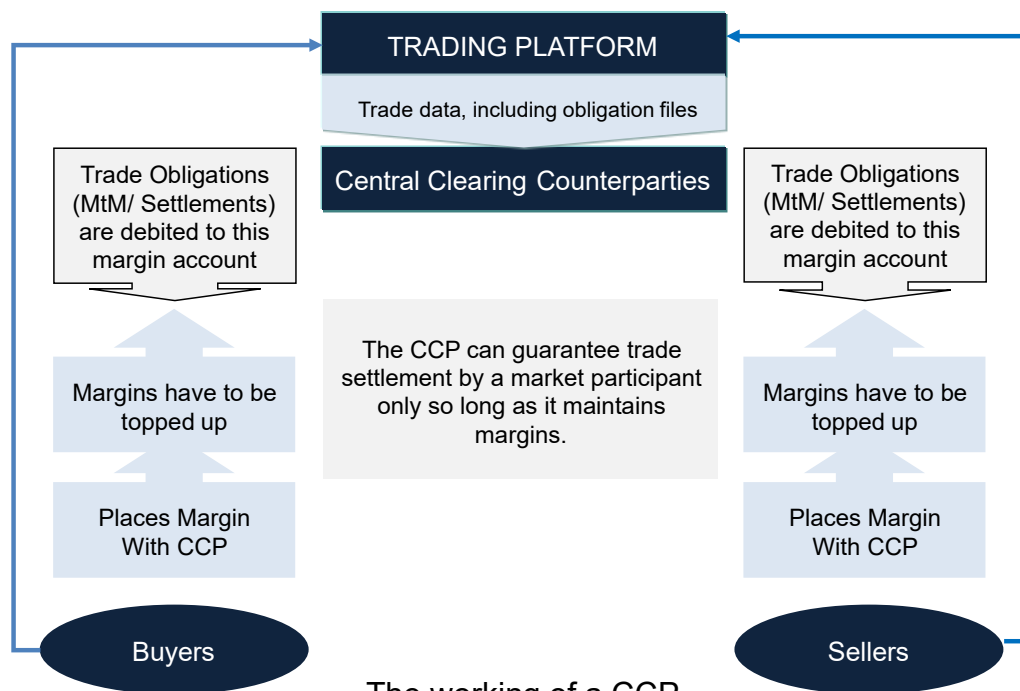
Trades in OTC products involve direct contact between buyer and seller. Traditionally this used to be phonebased. Later steps of the Trade Cycle were then completed manually. Phone conversations were recorded if needed later for dispute resolution. Single platforms, that use electronic means of communication are now used for the same one-to-one trade. This automates many of the subsequent steps and mitigates the risk of disputes.

B. Documentation and Conventions

For two counterparties to engage in trade with each other in the OTC space, there needs to be prior documentation as per industry standards. ISDA documents for derivatives and FXC documents for Fx trades are examples.

C. Clearing & Settlement

Historically, there are no Clearing & Settlement architectures available for settling an OTC Trade. Each party must pay the other directly and seek delivery directly. This is referred to as Delivery versus Payment (DvP). Of late, to reduce operational risks the concept of Central Clearing Counterparty (CCP) is being championed. CCPs are discussed later. The creation of CCPs does not change the underlying nature of settlement for OTC Trades.



The working of a CCP

Risk Levels & Mission Criticality: Exchange vs. OTC

Let us put examine the differences in the Exchange and OTC Trade Cycle from an Operation and Risk Perspective to improve our understanding of the issues:

Exchange-Traded

- Counterparty Credit Risk is addressed by the Exchange,. No one can default.
- Trades happen at the exchange
- Law is per jurisdiction/ location of the exchange
- Settlement Mechanism: through the Clearing house of the Exchange • Delivery Risk: minimal

OTC Trades

- Counterparty Credit Risk is significant, and each party addresses it on its own • Trades on platforms without regard to buyer/ seller being in different countries
- Jurisdiction is a choice between the parties: usually either New York, London or Tokyo
- Settlement Mechanism: directly between the parties, by own arrangements
- Now includes CCPs. One has to check if a trade will settle through a particular CCP

Other differences exist, too. However, from a Trade Life Cycle perspective those cited above are significant. They demonstrate the extent of extra care and involvement necessary in OTC Trades over similar activities in an Exchange Trade.

Products: Exchange Traded vs. OTC Traded

Exchange-Traded

- Equities
- Exchange Traded Equity Derivatives
- Commodity Derivatives
- Futures on financial contracts: Interest Rate Futures etc.

OTC Trades

- Money Markets
- Fixed Income
- Bonds
- Foreign Exchange
- OTC Derivatives (this could include special equity derivatives, not traded on an exchange)

We must take note that in free markets (US, UK, Western Europe) any two parties can trade any product with each other directly. Thus, it is possible for two parties to engage in an Equity trade OTC. In certain markets, it is not permitted to trade certain securities “off market” / OTC. (for e.g. India, listed equities.) These exceptions are not discussed here.

The Internal View of the Trade Life Cycle

As opposed to the broad market view, the TLC is an internal view of internal handling of the trade through its various stages. This in parallel to steps that are happening in the ecosystem.

In some ways, the TLC internal view is a detailing of a firm’s internal system with external market infrastructure and systems.

Broad TLC framework:

A. Client On-boarding

- a. Due Diligence
- b. Account Setup
- c. Account Opening
- d. Standard Settlement Instructions

B. Pre-Trade

- a. Pre-trade analytics

C. Trade Execution

D. Post- Trade Pre-Settlement

- a. Trade Booking / Capture
- b. Trade Review & Validation
- c. Trade Enrichment
- d. Trade Documentation
- e. Trade Allocation
- f. Trade Confirmation
- g. Trade Reconciliation
- h. Trade Amendments
- i. Position Reconciliation
- j. Pre-Settlement confirmation
- k. Clearing & Netting

E. Settlement

- a. Payment & Delivery
- b. Cash movement
- c. Securities movement

F. Post Settlement

- a. Settlement Accounting
- b. Accounting reconciliation
- c. P&L Accounting & Reconciliation
- d. Trade Reporting / MIS
- e. Lifecycle Events
- f. Risk Management
- g. Corporate Actions

Agreements and Documentation for OTC Trades

We have now seen that:

- OTC Trades are undertaken directly between parties
- Each party is exposed to the risk that the other party defaults

In the absence of the kind of guaranteed settlement offered in Exchange Trades, it becomes necessary for counterparties to OTC trades to enter into specific, legally enforceable agreements to protect their respective rights.

Technically, this need for legal agreements between counterparties is on a trade-by-trade basis, since each trade is a new contract.

Agreements can be time-consuming and expensive if each agreement is to be negotiated and signed separately.

The financial industry has therefore developed global industry standards and templates which are used to enter into these agreements.

Basic Structure of Documentation

Historically each trade was separately documented by agreement. This structure is still followed for those products which are new in the market and the legal and operational complexities of which are not fully understood.

In such cases, the confirmation accompanying the trade is called a “long form confirmation”.

Current, modern practice in documentation involves entering into a Master Agreement which is pre-printed and governs the relationship. A Schedule covers terms relating to a specific product. So there are schedules under the master covering each product. A short form confirmation is generated for each and every trade.

The Master covers standard terms and conditions. These are repetitive in nature need not be restated each time a trade is done. These do not change between two counterparties.

Schedules cover products – product by product. These are repetitive in nature and need not be restated for trades in that product.

Confirmations: Cover specifics which change from trade to trade: like instrument, price, quantity, settlement details etc.

Trade Automation & STP

OTC / Cash & Derivatives

In order to understand the nature and role of automation and Straight-Through-Processing systems in OTC Trades, we need to understand the OTC space which we did in the preceding section.

Proceeding from there, we also need to look at market participants. The big banks usually trade directly with each other. Money Market and Forex transactions are typical examples.

The big banks may also do those same types of trades through a market broker. Such a broker may be aware of the prevailing trading interest among different institutions in the market, thereby saving those banks time and effort. In the forex/ money markets such a broker is known as a 'name-broker'

Dealers, whether at big banks or at smaller brokerages often conduct trades to meet the needs of their clients.

For instance, Acer in Taiwan wants to buy US Dollars to pay Intel for computer chips. Acer might call the dealer at its bank.

The bank can adopt one of several strategies:

1. First buy then supply the dollars to Acer
2. Supply from stock; then wait to buy in open market at lower rates
3. Keep Acer on hold; check rate in market, add margin, get a rate confirmation from Acer and after Acer confirms execute both sides of the trade

All these are possible and are used depending on market conditions and market views of the trader at that point in time.

The Outcome of an OTC Trade

From the nature of trades seen in the previous page, we can see that it becomes important to know whether a trade:

- increases the dealer's exposure or
- reduces the exposure or
- has no impact

Given the risks in an OTC Trade the firm would like to closely monitor all aspects of trades done in real-time, specifically:

- a. Dealing position: long or short
- b. Profit and loss: outcome of the trade
- c. Market risk control
- d. Credit risk control
- e. General ledger: updating of the bank's accounting system)
- f. Confirmation processing by the back office: is it prompt and up to date?
- g. Settlement by the back office: are there any failures?
- h. Reconciliation systems: are there any pending items?

Trade Capture / Typical Input Data

- a. Counterparty to the trade
- b. How the deal was transacted (phone, broker, EBS etc)
- c. What was the instrument traded
- d. The currencies and amounts transacted
- e. Whether the trade was a buy or sell; borrow or lend
- f. The trade date and time
- g. Settlement date
- h. The exchange rate, price or rate
- i. Any standard terms and conditions or documentation to be used
- j. Settlement instructions
- k. Whether the trade is to be netted

Certain information is specific to instruments: like strike price of an option, for a swap settlement dates and rates; for repos the start and end dates

Missing any of these will make it difficult if not impossible to later settle the trade.

The Mandatory Use of CCPs:

Central Clearing Counterparties interpose themselves between the two counterparties to a trade. The CCP then takes over settlement of the trade.

This is possible only where both parties maintain adequate margin with the CCP.

The typical process is as follows:

1. Counterparties will check with each other whether settlement can be undertaken at a particular CCP
2. On confirmation, the Counterparty will make reference to the CCP
3. The CCP will confirm to settle a trade based on the margin held by it from that counterparty 4. To that extent the CCP will mark the margin and it will not be usable for other trades
5. That margin will be released only after the trade is settled.
6. In the meantime, on every mark to market date the CCP will debit the margin account of the loser.
7. When the position is closed, leftovers in the margin account will be released back to the counterparty.
8. If margin is not replenished, that CCP will not take up settlement of any further trades from that Counterparty.

Traditionally, Trading Platforms for OTC products existed in a vacuum. Now, with the use of CCPs it has become necessary to link Trading Platforms to CCPs for flow of trade date smoothly.

Furthermore, in order to keep an eye on trading platforms regulators have asked operators of trading platforms to register themselves with regulators.

Now we know names of trading platforms and also of settlement platforms. There are also connectivity solutions to link the two.

Introduction to Corporate Actions

Any event that brings material change to a company and affects its stakeholders. This includes shareholders, both common and preferred, as well as bondholders. These events are generally approved by the company's board of directors; shareholders are permitted to vote on some events as well.

Asset servicing is a "core" ongoing service provided by custodians. This service includes collecting dividends and interest payments, processing corporate actions and applying for tax relief from foreign governments on behalf of customers.

Classification of Corporate Actions:

These two broad categories of events (distribution and reorganisation) can be further refined based on whether the holder of the underlying securities has to act or not for his/her holding to be affected or choose how they will be affected or what kind of "resource" he/she will get as part of the event. All events are either voluntary events, mandatory events or mandatory events with choice.

Voluntary events:

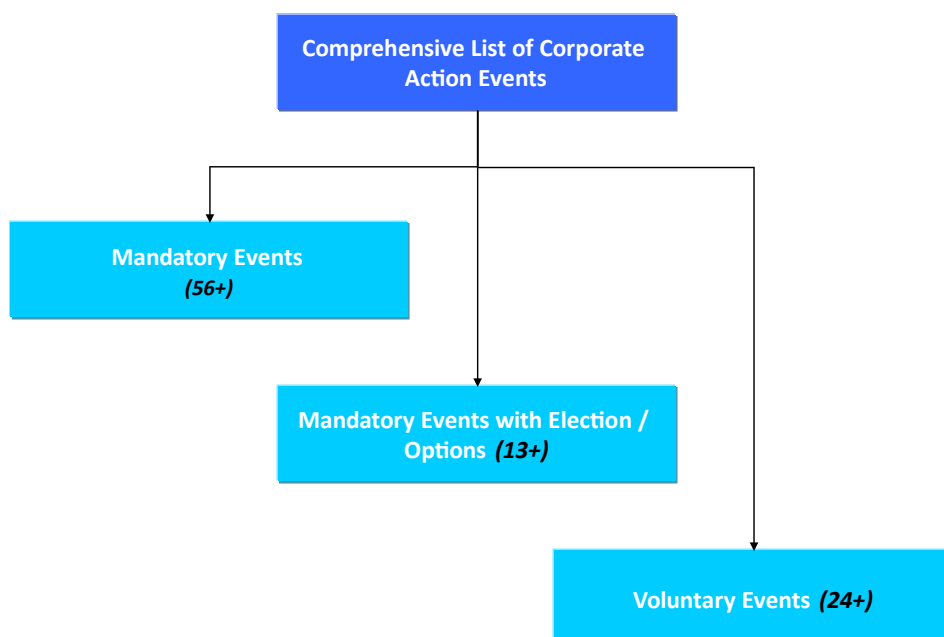
Events in which holders of a security need to act if the event is to affect their holdings. The issuing company will usually inform all holders of the event that is about to take place; sometimes this notice is provided in the original offering documentation for the security. If no action is taken by the holder then his holding will be unaffected by the event.

Mandatory events:

Events that will occur without any action required by individual holders of the security. They may involve, for example, an issue of securities, a reorganisation (i.e. mandatory exchange) or certain payments.

Mandatory events with options:

Those events that will occur without any action on the part of the holders of the security, but in relation to which the holders have some choice as to the type of benefit they may receive.



The Regulatory Framework for a Universal Bank

The investment banking group is covered by, regulations related to markets. The commercial banking group is covered by, regulations related to banking.

Private, or wealth customers, are covered in a sense, by both banking as well as market regulation. But in their instance, the regulation is best understood, in the context of consumer protection and investor rights. This gives us a better grasp of the regulatory focus in their instance.

The agencies tasked with market regulation are:

- ☑ The Securities Exchange Commission
- ☑ The Commodity And Futures Trading Commission
- ☑ The Financial Industry Regulatory Authority, or FINRA, regulates business conduct by its members, among other things.
- ☑ The Federal Reserve oversees the banking system
- ☑ The Federal Deposit Insurance Corporation, or F D I C. provides deposit insurance. Depositors are guaranteed repayment of deposits up to 250,000 dollars.
- ☑ The rights of wealth and private banking customers, are secured by the FINRA rule-book for the most part.

Now, That gives you a quick and meaningful overview, of how regulation plays out in complex financial organizations, that are present in all the businesses.

Markets Regulation.

The design of market regulation, is based on self regulation. The Brokerage Firm, is The FIRST layer of regulation. It is Responsible for its own compliance, with laws and regulations.

